WA 8967
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RCRA Compliance Inspection Report

U.S. Department of Energy Hanford

242-A Evaporator, 616 Area, and 222-S Laboratory

Richland, Washington

WA7890008967

September 22-24, 2014

FILE COPY

Jack Boller
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12/3/14
Report Date

Peer Review Signature

11/14/14
Date

Peer Review Signature

11/25/14
Date

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Disclaimer

This report is a summary of observations and information gathered from the facility at the time of the inspection. The information provided does not constitute a final decision on compliance with RCRA regulations, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility.

Section A: Basic Facility and Inspection Information

Facility Information

Handler Name:	U.S. Department of Energy Hanford
Handler ID Number:	WA7890008967
Facility Contact/Title:	Cliff Clark, Regulatory Compliance Manager
Facility Location Address:	Hanford Facility, Richland Washington
Facility Mailing Address:	P.O. Box 550, Richland, Washington 99352-0550
Contact Phone Number:	(509) 376-9333
Contact Email Address:	clark.cliff@rl.doe.gov
GPS Coordinates of Site:	Lat: 46.565007 Long: -119.511100

Inspection Information

Inspection Type:	Focused Compliance Inspection (FCI) for the 242-A Evaporator, 616 Area, and 222-S Laboratory		
Inspection Date:	September 22, 2014	September 23, 2014	September 24, 2014
Arrival Time:	1:00 pm PDT	8:30 am PDT	8:30 am PDT
Departure Time:	4:30 pm PDT	4:30 pm PDT	9:30 am PDT
Inspection Team:	Jack Boller, RCRA Compliance Officer, EPA Matthew Vojik, Inspector, EPA Kathy Conaway, RCRA Compliance Officer, Ecology Nancy Ware, RCRA Compliance Officer, Ecology Edward Holbrook, RCRA Compliance Officer, Ecology		

Section B: General Facility Information

Owner/Operator Information: The owner of the facility is the United States Government. The operator is the U.S. Department of Energy (DOE). The DOE uses multiple contractors to operate the facility. DOE has contracted with Washington River Protection Systems (WPRS) to manage the various entities/areas covered by this inspection.

Site Location: The Hanford Nuclear Reservation is an approximately 600 square mile facility located in central Washington State immediately north of Richland, Washington. It is bounded on the north and east by the Columbia River. Immediately to the south of the Reservation is the Richland/Kennewick/ Pasco Tri-cities urban area. The area north of the river is the Hanford Reach National Wildlife Preserve. The surrounding areas to the east and west are sparsely populated agricultural land.

According to EJSCREEN, the facility is not in an environmental justice area. There are areas within the facility that have cultural significance to various central Washington and central Oregon Native American Nations.

This inspection focused on waste management activities at the 242-A Evaporator unit, the 616 Area less than 90 day accumulation area, and the 222-S Laboratory unit group. All of these are in or near the 200 East Area which is located in the central portion of the Hanford facility approximately 15 miles from the southern boundary of the facility.

Background and Activities: The 242-A Evaporator is used to remove water from the sludges that are stored in the Hanford double shelled tank storage unit. For more detailed background and activities information for the 242-A Evaporator, see the May 19, 2014 Hanford RCRA inspection report.

According to Glen Triner, a WRPS manager, the 616 Area is currently used for less than 90 day accumulation of waste generated in the maintenance of the Double Shelled Tank Farm (DST) and the Single Shelled Tank Farm (SST). The building was originally built to serve as a hazardous waste container storage unit, which it did through the late 1990s, at which time formal RCRA closure was conducted and the building was converted to a less than 90 day accumulation area.

According to the Hanford Dangerous Waste Permit Application Part A Form dated October 1, 2008 and my observations during the inspection, the 222-S Laboratory unit group consists of the following:

- the labs that are housed in the 222-S Building;
- the Room 4-E and Room 2-B permitted storage units in the 222-S building;
- the Dangerous and Mixed Waste Storage Area (DMWSA) permitted storage unit located adjacent to the 222-S building;
- the 219-S Waste Handling Facility that is a tank farm consisting of three active permitted waste storage tanks and one inactive tank that has not completed closure; and
- the 2716-S Building universal waste accumulation area.

According to Lucinda Borneman, the 222-S Laboratory provides the laboratory support for the DST and SST. It is capable of performing a variety of laboratory analysis on both radioactive and non-radioactive samples. Waste that is generated from the labs, as well as waste from DST and the 616 Area less than 90 day accumulation areas are managed in the storage units within the 222-S Laboratory unit group.

Section C: Regulatory Information

Compliance History: The Hanford facility is a RCRA Significant Non-Complier (SNC). It has been in SNC status since the mid 1990's. For more details, see the inspection report for the April 1, 2014 Hanford RCRA inspection.

Regulatory Status: The Hanford facility is a permitted Treatment, Storage, and Disposal facility, as well as a large quantity generator of hazardous waste and a large quantity handler of universal waste. The Dangerous Waste Permit was originally issued by Ecology in 1994 and had an expiration date of September 27, 2004. DOE has filed an application to renew the Permit. Pursuant to the provisions found in WAC173-303-806(7)(a), DOE will continue to operate under the original Permit and modifications that are made to that permit until a new permit is issued, which is projected to happen in 2016.

The Permit has undergone several modifications. The current active Permit, including modifications, is Permit Revision 8C, Class 1 Modification, dated March 31, 2012 (Permit). It identifies multiple hazardous waste unit groups within the facility. Within each unit group, there may be several individual treatment, storage, or disposal units. The Permit has final status operating standards for some of the unit groups. The Permit requires those units that do not have final status permit standards to operate in

compliance with the interim status standards until such time that final status permit standards are implemented for that unit. Final status permit standards can be implemented either through a permit modification or issuance of a new permit. The Part A Permit Application Form for each unit group identifies the activities being conducted in that unit group and wastes that are potentially being managed in the unit group.

Specific operating standards and conditions are specified in the current (March 31, 2012) Permit for the 242-A Evaporator. The current Permit also includes a Part A Permit Application Form for this unit group. The Permit describes the permitted treatment process for the 242-A Evaporator. Waste generated through the operation and maintenance of the Evaporator is managed in one of two less than 90 day accumulation areas which are not subject to permit conditions. Waste that is managed in the less than 90 day areas is subject to the Large Quantity Generator (LQG) Standards found at WAC 173-303-170 through WAC 173-303-200.

The 616 Area less than 90 day accumulation area is not required to have a permit and therefore does not have a Part A Permit Application Form. Waste that is managed at this site is subject to the Large Quantity Generator (LQG) Standards found at WAC 173-303-170 through WAC 173-303-200.

There are no specific operating standards and conditions specified in the current (March 31, 2012) Permit for the 222-S Laboratory unit group. Any treatment, storage, or disposal (TSD) activities conducted in the 222-S Laboratory unit group are therefore subject to interim status standards. According to the Part A Permit Application Form for 222-S Laboratory, dated October 1, 2008, those TSD activities include the three container storage units and one tank storage unit operating at the 222-S Laboratory. Specifically, waste is stored in the 222-S DMWSA, the Room 4-E storage unit, the Room 2-B storage unit, and the 219-S Waste Handling Facility which includes the 219-S Tank System. Within the laboratory, there are also several satellite accumulation areas (SAA) and two less than 90 day accumulation areas which are not subject to interim status standards and therefore are not included on the Part A Form. Waste that is managed in the less than 90 day areas and SAAs are subject to the Large Quantity Generator (LQG) Standards found at WAC 173-303-170 through WAC 173-303-200. There is also an area within the 222-S Laboratory complex for collection of universal waste lamps and batteries. This area is managed to standards for a large quantity handler of universal waste found at WAC 173-303-573(17) through WAC 173-303-573(27).

In preparation for conducting this inspection, I reviewed the October 1, 2008 Part A Permit Application Form for the 222-S Laboratory. During that review, I noted that in Section IV of Part A Permit Application Form the Physical Location of the facility is given as 825 Jadwin, Richland, Washington. This is actually the address of the federal building in Richland which is approximately 5 miles away from the southern boundary of the Hanford facility and 20 miles from the 222-S Laboratory. WAC 713-303-803(3)(b) requires that the Part A Permit Application Form of the final facility permit application include, among other things, the location, including latitude and longitude, of the facility. The Part A Permit Application Form does not include latitude and longitude of the facility. This is a common finding for all of the Part A Permit Application forms reviewed during inspections conducted at Hanford by EPA in the past 18 months.

Site Hazardous Waste Information: According to the October 1, 2008 Part A Permit Application Form associated with the 222-S Laboratory unit group, the units are permitted to manage 43 characteristic dangerous wastes, 393 federally listed hazardous wastes, and 7 Washington State only dangerous wastes. During the inspection, facility personnel told us that most of the wastes managed in the 616 Area and the 222-S Laboratory are classified as radioactive mixed waste. Radioactive mixed wastes are a combination of hazardous and/or dangerous waste mixed with radioactive waste. The Department of Energy, the Washington State Department of Health, the Washington State Department of Ecology, and the EPA all have regulatory authority over mixed waste. During the inspection, we also observed

that the 616 Area and the 222-S Laboratory generated and accumulated aerosol cans, batteries, and fluorescent lamps.

Section D: Description of Inspection

Purpose of Inspection: This was a focused compliance evaluation inspection (FCI) of the 242-A Evaporator, the 616 Area, and the 222-S Laboratory to assess compliance with the Hanford Facility Resource Conservation and Recovery Act Permit, Permit Revision 8C, Class 1 Modification, dated March 31, 2012 (Permit) and for compliance with the following regulations of Washington's federally authorized hazardous waste program: WAC 173-303-170 through 230 standards for hazardous waste generators; WAC 173-303-573 standards for universal waste; and WAC 173-303-515 requirements for management of used oil.

Inspection Entry and Opening Conference: This was not an unannounced inspection. During the closing conference of our inspection on July 16, 2014, I announced that we would be returning to conduct further inspections on September 22. On September 8, 2014 at approximately 9:00 am I was contacted by Cliff Clark, the Hanford DOE Regulatory Compliance Manager, by phone. He explained that he was going to be out of town for the next few days and asked if I could tell him what units we would be inspecting. I told him that we would be inspecting the 616 Area less than 90 day accumulation area and the less than 90 day pads at the 242-A Evaporator on September 22, and the 222-S Laboratory on September 23 and 24. I confirmed that we were planning to meet at the Federal building in Richland at 1:00 pm on September 22 to begin the inspection.

The EPA members of the inspection team arrived at the Federal Building in Richland on September 22, 2014 shortly after 1:00 pm. While signing in at the Pass and ID Office and receiving dosimeters, we were joined by Cliff Clark of DOE. He escorted us to a conference room. Around 1:20 pm, I presented my inspector credentials and we began the opening conference. Seventeen people were in attendance. DOE regulatory compliance office was represented by, among others, Cliff Clark, Tony McKarns, and Brian Trimberger. For a complete list of attendees, see the sign-in sheet in Attachment C or on the document disc which contains all the documents we requested during our inspection. Mr. McKarns and Mr. Trimberger accompanied us on the remainder of the inspection. Michael Greene, who is the primary contact for WRPS and Jerry Cammann with Mission Support Alliance (MSA) also accompanied us on the entire inspection.

In the opening conference, I explained that this would be an EPA lead inspection and that we would be evaluating compliance with the Permit and the Ecology federally-authorized Dangerous Waste Regulations. After answering a few logistical questions regarding file reviews and document requests, we ended the opening conference and boarded a DOE van for the 30 minute trip to the 242-A Evaporator and 616 Area. Nancy Ware from Ecology met us at the 242-A Evaporator and accompanied us on the inspection the first day. Kathy Conaway and Edward Holbrook of Ecology joined us on the second day for the 222-S Laboratory inspection.

Inspection Summary: We did a thorough inspection of the 242-A Evaporator on May 20, 2014. At that time the unit was not operating. The unit had resumed operation in July 2014 and was operating at the time of this inspection. Since a thorough inspection had been done earlier in the year, during this inspection we only looked at the less than 90 accumulation areas to see if any waste was present. During the tour of the 616 Area and the 222-S Laboratory, we looked at all of the storage and disposal units, as well as all the satellite accumulation areas and less than 90 day waste accumulation areas that contained hazardous or mixed waste. We also looked at points of hazardous waste generation identified by the representatives of those areas. Additionally, we looked for waste that was being generated or otherwise managed in these areas that had not been identified by facility representatives. We compared the dangerous waste management in these areas to the applicable permit or regulatory conditions. We also reviewed some files while on site on September 22 and 23, 2014.

For each of the areas we inspected, we requested that documents be sent to us for review following the onsite portion of the inspection. The documents were compiled by Mr. Greene. Mr. McKarns of DOE placed all of the requested files, including the ones we had reviewed on site, on a compact disc (CD) (see Attachment C) and sent them to me on October 10, 2014.

The areas inspected are listed below. In addition to our observations, our sources of information for each area visited are given below (unless otherwise noted elsewhere in this report).

242-A Evaporator:

Managed by WRPS
General Contact: Brian Von Bargen
I observed one drum in the less than 90 day accumulation area, on the north side of the 242-A building. According to the labels on the drum, it contained low level radioactive waste contaminated with asbestos. I observed no other waste on the north side of the 242-A building. Mr. Von Bargen told me there was no waste in the less than 90 day accumulation area on the south side of the building.

616 Area:

Managed by WRPS
General Contact: Glen Triner
The 616 Area consists of a building and a fenced outdoor space. The area is not permitted and so is subject to applicable regulations for accumulating hazardous and universal waste. At the time of the inspection, I observed the following wastes being managed in the building: universal waste lamps, universal waste batteries, used aerosol cans, non-radioactive dangerous waste, mixed waste, and low level radioactive waste. Within the fenced area outside of the building, I observed containers of mixed waste and containers of low level radioactive waste. I also observed in this outside area, a conex box that contained wooden boxes containing lead/acid batteries. Mr. Triner said that they were being accumulated for recycling. A second conex box contained 14 boxes of universal waste lamps. In the outside area, I also observed a drum, that according to Mr. Triner, contained radioactive lead shielding that will be sent to Oakridge for reuse.

222-S Laboratory:

Managed by WRPS
Contacts: Lucinda Borneman
Within a radiological zone in the 222-S building, I inspected Room 4-E and Room 2-B container storage areas, two less than 90 day accumulation areas, and several satellite accumulation areas in laboratory hoods. According to Ms. Borneman, waste generated in the laboratories of 222-S are accumulated and/or stored in the areas I inspected. Before the waste is shipped off-site, the waste in the SAAs, less than 90 day areas and storage units are repackaged. Some dangerous waste that is generated in the 222-S Labs is poured in the sinks. According to Ms. Borneman, these sinks all drain to the 219-S Tank System which contains highly radioactive mixed waste and is located in an in-ground concrete vault. Within the 219-S unit vault are tanks 101,102, and 104 which actively manage waste and tank 103 which has been decommissioned. When the tanks are full, the waste is transferred to the DST. I also observed the DMWSA storage area which is located on a concrete pad outside of the 222-S building. It consists of six conex box-like structures. At the time of the inspection, each box contained drums or smaller containers of waste. The waste was segregated into mixed waste, low level waste, and non-radioactive dangerous waste. Inside Building 2716-S, I observed an area for accumulation of universal waste lamps and batteries, as well as a satellite accumulation container for maintenance shop waste and used oil accumulation drums.

Any issues that the inspection team identified are discussed below.

In the outdoor area at the 616 Area, I observed a few empty drums. Mr. Triner explained that the drums had been removed from service because they had rust spots on them. Because of issues with rusty containers holding waste at the Central Waste Complex (CWC) that were identified during an April 1, 2014 inspection, I took a close look at these drums (Photo P1010596). I observed that the drums that had been deemed unfit for use and removed from service by WRPS appeared to me to have significantly less rust on them and were in much better condition than the rusty drums being used to store waste at the CWC which is managed by CH2MHill Plateau Restoration Company (CHPRC).

Photo P1010596. Discarded drums at 616 area

During the file review at the 616 Area, I asked for a copy of the contingency plan. It was explained by Mr. Triner that the 616 Area was under the DST contingency plan. He said that there was not a copy of the plan at the 616 site but there was a copy at DST which is approximately one half mile from the 616 Area.

In the Room 4-E storage unit in the 222-S Building, I observed a 2ft x 1ft x 2ft rectangular metal container. The container was labeled as "hazardous waste-toxic" and had a start date marked on it of 6/30/09 (photo PIC 22). Mr. McKarns explained that this waste was transuranic (TRU) waste and was in storage for well over the one year limit established by the land disposal restriction regulations (LDR) in 40 C.F.R. § 268.50 (which is incorporated by reference at WAC 173-303-140(2)(a)), because the only place that is allowed to dispose of or permanently store TRU waste is the Waste Isolation Pilot Project (WIPP) facility in New Mexico. Mr. McKarns said that the WIPP facility is currently shut down for repairs and will likely not reopen to accept waste until early 2016. According to information I found at http://www.wipp.energy.gov/wipprecovery/recovery.htm, the WIPP operations were shut down following an underground truck fire and radiological release in February 2014. A recovery plan was issued on September 30, 2014 that outlines the necessary steps to resume limited waste disposal operations in the first quarter of calendar year 2016. Mr. McKarns provided me no additional information during the inspection that indicated why this container of mixed waste was not sent to the WIPP by June 2010 or that the extended storage of this waste was solely for the purpose of accumulation of such quantities to facilitate proper recovery, treatment or disposal.

PIC 22. Container of TRU waste .

Following the inspection, I obtained copies from Ecology of the reports submitted by DOE which are intended to verify that waste in storage over one year at the Hanford facility is managed according to the conditions in 40 C.F.R. § 268.50 (which is incorporated by reference at WAC 173-303-140(2)(a)) . These reports covered the period from January 2010 to the present. As I reviewed the reports, I noted that the total amounts of containerized waste in the Room 4-E storage unit are given but the report does not itemize specific containers, does not identify any TRU waste in the unit, and does not provide any information to prove that the excessive storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal as is allowed in 40 C.F.R. § 268.50. The LDR reports are included in Attachment C.

During the tour of the 222-S Laboratory Universal Waste accumulation area in Building 2716-S, I observed a rectangular cardboard box which facility personnel said contained 8ft long fluorescent lamps being managed as universal waste (photo PIC 15). I noticed that the box had a log sheet on it that Ms Borneman said was used to record the date that universal waste lamps were added to the box. According to the log sheet, the box contained six fluorescent lamps that had been placed in it on August 25, 2014. I inspected the entire box and did not see any marking on it that indicated the lamps in the box were Universal Waste. Next to this box of lamps, I observed two other boxes of lamps that were labeled as universal waste lamps. I pointed out the lack of a universal waste label or other marking on the first box I observed and one of the facility staff people immediately placed a label on it that read "Universal Waste (Lamps)."

PIC 15. Boxes of universal waste lamps after label was attached to the box on the left.

During the onsite file review at the 222-S Laboratory, I asked if integrity assessments had been conducted for the tanks in the 219-S Tank System. Ms. Borneman stated that Tank 103 had been removed from service in 1999. Tanks 101 and 102 were put into service in 1951 and were therefore in existence prior to the tank regulations becoming effective in 1986, but were not used to manage hazardous waste until 1990. She stated that an integrity assessment was conducted in 1990 on those tanks prior to putting them into hazardous waste service. Tank 104 was installed in 1996, after the effective date of the tank regulations. She said that integrity assessments were conducted on all three active tanks in 1999. I asked for copies of the assessments performed in 1999 on Tanks 101, 102, and 104. Following the inspection, we received the two 1999 integrity assessment reports, which are included in Attachment C. According to those reports, Tanks 101,102, and 103 were constructed in 1943 but were not put into service until 1951. In 1990, an integrity assessment was done for all three tanks prior to putting them into hazardous waste service. In 1999, DOE installed secondary containment around Tanks 101 and 102 to bring them into compliance with the tank regulations. According to the assessment, due to the way Tank 103 was installed, it was not possible to provide compliant secondary containment and therefore it was removed from service and replaced by Tank 104 in 1996. In June of 1999, an integrity assessment was done on Tanks 101 and 102 by Flour Daniel Northwest (a DOE contractor, not an independent licensed engineer as required by WAC 173-303-640(2)(a)). In July of 1999, an integrity assessment was done on tank 104 by ChemMet, Ltd., in conjunction with Flour Daniel Northwest. The results of each of these assessments indicated that all three tanks would last for at least an additional 30 years and no further assessments were recommended.

I asked if Tank 103 in the 219-S Tank System had gone through RCRA closure. Ms. Borneman explained that the tank had been removed from service in 1999. At that time, it was emptied, triple rinsed, disconnected from the 219-S Tank System and blanked. Ms. Borneman further explained that Tank 103 was not put through complete RCRA closure because the act of removing it from the vault would require prolonged shutdown of the entire tank system and would likely result in the release of high levels of radioactivity. I asked to see documentation that the "delay of closure" regulations had been complied with. Following the inspection, I received a copy of the 222-S closure plan, which is included in Attachment C. The plan does not have a schedule for closure, but instead says that closure will occur at some point in the future when the units are no longer receiving waste. In addition to the closure plan, I received a copy of a January 10,1999 letter from DOE to Ecology requesting that the completion of closure of Tank 103 be delayed until such time that the whole 219-S Tank System is closed. I also received a copy of a February 11, 1999 letter from Ecology approving the delay of closure for Tank 103. Copies of both letters are in Attachment C.

During the inspection, I asked Ms. Borneman how they managed the contaminated piping that had been removed from the T-8 pipe tunnel that connects the 219-S tanks with other areas within the 222-S unit group. Ms. Borneman said that the old piping in the T-8 pipe tunnel that had been dismantled and replaced in 1997 was part of the 219-S Tank System which had carried high radiation RCRA listed waste (mixed waste) through the system. When this old piping was replaced with new piping, the old piping was cut up and stored in a portion of the T-8 Tunnel. She further stated that when the 222-S unit group goes through closure sometime in the future, the old, contaminated piping that is now being stored in the T-8 Tunnel will be dealt with. Following the inspection, I received a copy of a July 1997 letter from DOE to Ecology requesting approval to store the cut up pieces of the old, high dose pipe in the T-8 Tunnel until the 222-S unit group goes through final RCRA closure. Ecology approved this request to store the piping in the T-8 Tunnel in a letter dated October 10, 1997. Copies of both letters are in Attachment C. When I reviewed the closure plan for 222-S, I noted that the old cut up piping stored in the T-8 Tunnel is included in the plan. The closure plan for the 222-S Unit states that at time of closure, the old cut up piping will be examined to determine if it can be managed as "clean debris." If it cannot be managed as "clean debris," the closure plan states that it will be managed as radioactive mixed waste under RCRA. I also noted that the LDR annual report that I received from Ecology following the inspection identifies this piping as debris designating as mixed low level waste. The LDR report is included in Attachment C.

Closing Conference: On September 24, 2014, we met with representatives of the DOE and their contractors at 8:30 a.m. at the Federal building in Richland for a closing conference. I presented the following potential issues:

- the delay of closure of Tank 103 as well as the old piping that was removed from service and is being stored in the T-8 Tunnel
- the integrity assessment of the three active tanks
- the storage of TRU waste exceeding one year
- what appeared to be a difference in standards between WRPS and CHPRC as to what constitutes corrosion significant enough to remove steel drums from service

I stated that we might have more concerns once we received and reviewed the documents we requested.

I thanked the facility representatives for their time and cooperation and we ended the inspection at 9:30 a.m.

Post inspection record review: On October 10, 2014, following the onsite inspection, I received a disc that contained documents I had requested for further review (see Attachment C for a list of the documents requested and provided on the disc). I reviewed all of the documents on the disc and identified the issues discussed below.

The regulations require that an owner/operator have a contingency plan at his facility for use in emergencies or sudden or non-sudden releases which threaten human health or the environment. In previous inspections of the Hanford facility, we learned that the RCRA contingency plan is "imbedded" into the Building Emergency Plan (BEP) for each unit group. I reviewed the BEP for the 222-S laboratory. The BEP specifies that "Sections 1.5, 3.1, 4.0, 7.1, 7.1.1, 7.1.2, 7.2, 7.2.1, 7.2.2, 7.2.3, 7.2.4,7.2.5, 7.2.5.1, 7.3 8.2, 8.4, 9.0, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 11.0, 12.0, and 13.0 of the BEP are enforceable sections meeting RCRA contingency planning requirements." I noted that the BEP refers to standards or procedures set out in the Hanford Contingency Management Plan (HCMP), which covers

the whole Hanford facility and references the BEPs. In addition to addressing releases of RCRA regulated waste, the HCMP includes procedures for addressing releases of non-RCRA regulated radioactive material and waste.

Among other things, contingency plans are required to have a current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator. In reviewing the BEP for the 222-S Laboratory, I noted that the BEP states that the building emergency director is the emergency coordinator, and that a list of building emergency directors and their work phone numbers is included in Section 13 of the BEP. In Section 13, I observed that instead of a list of names of all persons qualified to act as the emergency coordinator, there is only a general phone number with no names of the emergency directors. In the event that nobody is available to answer at the general phone number, the Hanford Patrol phone number is given as a backup phone number. By calling the Hanford Patrol, the caller may obtain a list of home phone numbers of persons qualified to act as the emergency coordinator.

I requested the inspection logs for weekly inspections of the storage units and the less than 90 day accumulation areas for the period from June 1, 2014 through September 20, 2014. The regulations require that at least weekly, the owner/operator must inspect areas where containers are stored and the owner/operator must keep an inspection log. In reviewing the requested logs, I noted that there was no inspection log provided for the week of June 8, 2014.

ATTACHMENT A

Aerial Photo

USDOE Hanford (242-A Evaporator, 616 Area, 222-S Laboratory)
WA7890008967
September 2014 RCRA Inspection Report

bing Maps

My Notes

242-A Evaporator

On the go? Use **m.bing.com** to find maps, directions, businesses, and more

Bird's eye view maps can't be printed, so another map view has been substituted.

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My Notes

616 Area

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222-5 Laboratory

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ATTACHMENT B

Photo Log

USDOE Hanford (242-A Evaporator, 616 Area, 222-S Laboratory)
WA7890008967
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ATTACHMENT B: HANFORD FACILITY PHOTOGRAPH LOG WA7 89000 8967
Photographer: Matt Vojik

Dates: 9/22-9/23/14
Camera model: Panasonic DMC-FH25
Facility: Hanford Facility

9/22/14:

- P1010581 – View of a drum located in the 90 day accumulation area next to the 242-A evaporator. A label indicates that the drum "CONTAINS ASBESTOS FIBERS."
- P1010582 – View of an empty box located next to the 90 day accumulation area next to the 242-A evaporator.
- P1010583 – View of the universal waste accumulation area in Bay 2 of the 616 building.
- P1010584 – View of the 90 day accumulation area in Bay 2 of the 616 building. The facility explained that this area contained mixed waste.
- P1010585 – View of the universal waste accumulation area for fluorescent lamps located in Bay 5 of the 616 building.
- P1010586 – View of the 90 day accumulation area in Bay 3 of the 616 building.
- P1010587 – View of boxes stored in the flammable waste storage area in Bay 4 of the 616 building. The labels indicate that the box on the left contains "AEROSOL CANS" and the two boxes on the right contain "Pressurized Cylinders (Air Dusters)." One box of "Pressurized Cylinders (Air Dusters)" was labeled "FLAMMABLE GAS" and the other was labeled "NON-FLAMMABLE GAS."
- P1010588 – View of a 90 day accumulation area located outside the 616 building. The facility explained that this area contained mixed waste.
- P1010589 – View of waste drums located outside the 616 building. The facility explained that these drums contained low level waste.
- P1010590 – View of a drum located outside the 616 building. The facility explained that this drum contained low level radioactive lead that would be recycled.
- P1010591 – View inside a box located in the lead acid battery accumulation area. This box is located in a shed outside the 616 building.
- P1010592 – View inside shed HS-039 located outside the 616 building. This shed was designated as a universal waste accumulation area. The labels indicate that the boxes contain fluorescent lamps.
- P1010593 – View of an unused drum located outside the 616 building. The facility explained that this drum was taken out of service because it had started to rust.
- P1010594 – View of unused drums located outside the 616 building. The facility explained that these drums were taken out of service because they had started to rust.
- P1010595 – View of unused drums located outside the 616 building. The facility explained that these drums were taken out of service because they had started to rust.
- P1010596 – View of unused drums located outside the 616 building. The facility explained that these drums were taken out of service because they had started to rust.

9/23/14:

- P1010597 – View of containers located inside shed HS-0083B in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010598 – View of containers located inside shed HS-0083B in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory

- P1010599 – View of containers located inside shed HS-0083B in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010600 – View of containers located inside shed HS-0083A in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010601 – View of containers located inside shed HS-0083A in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010602 – View of containers located inside shed HS-0082A in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010603 – View of containers located inside shed HS-0082A in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010604 – View of containers located inside shed HS-0082B in the Dangerous and Mixed Waste Storage Area near the 222-S laboratory
- P1010605 – View of universal waste containers located inside shed HS-0065A near the 222-S laboratory
- P1010606 – View of containers located in the 90 day accumulation area in shed HS-0065B near the 222-S laboratory
- P1010607 – View of containers located in the 90 day accumulation area in shed HS-0065B near the 222-S laboratory
- P1010608 – View of used oil containers located in shed HS-0065B near the 222-S laboratory
- P1010609 – View of fluorescent lamp boxes located in shed 2716-S near the 222-S laboratory. A universal waste label was applied to the box on the left after the photograph was taken.
- P1010610 – View of a universal waste accumulation area located in shed 2716-S near the 222-S laboratory.
- P1010611 – View of a satellite accumulation area located in shed 2716-S near the 222-S laboratory. The facility explained that this area contained "maintenance waste."


P1010581.JPG


P1010582.JPG


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P1010600.JPG


P1010601.JPG


P1010602.JPG


P1010603.JPG


P1010604.JPG


P1010605.JPG


P1010606.JPG


P1010607.JPG


P1010608.JPG


P1010609.JPG


P1010610.JPG


P1010611.JPG


P1010585.JPG

ATTACHMENT C

Documents collected from the facility

1. Document request response table
2. Attendance rosters
3. Dangerous Waste Permit Application Part A Form for 222-S Lab
4. Letters regarding closure of Tank 103
5. Letters regarding T8 tunnel pipe storage
6. LDR annual report
7. 222-S Closure plan
8. Tank Integrity Assessments

RECEIPT OF REGULATORY AND TANK FARM INFORMATION

TITLE:	DATE:	NUMBER:
EPA Inspection Document Request, 09.22.14	10/01/2014	TOC-RORI-14-075 Pg 1

REGULATORY AGENCY/COMPANY:	REPRESENTATIVE:
Environmental Protection Agency	Jack Boller - Matt Vojik

TOC REPRESENTATIVE:
Michael Greene - Jeff Voogd

This form is limited to the transmittal of unclassified and information only copies of tank farm records.

ITEM NO.	DOCUMENTS ISSUED (Includes Revision/Date and Title/Description)
1	Pre-Inspection & Post-Inspection Attendance Rosters for EPA Inspection, Attendance Rosters for 222-S Laboratory, 616 Building and 242-A Evaporator 5 pages
2	DOE/RL-91-27, Rev 2, Appendix 4B, Integrity Assessment Report of Tanks TK-10 and TK-102, HNF-4589, Rev 0 (Previously approved for Public Release on June 17, 1999) 16 pgs
3	DOE/RL-91-27, Rev 2, Appendix 4B-2.2, 219-S Waste handling Facility Integrity Assessment Report Design & Construction New Tank System and Components HNF-4589, Rev 0
	(Previously approved for Public Release on June 17, 1999) 20 Pages
4	DOE/RL-91-27, Rev 2, Closure Plan Report, Section 11.0, Closure and Financial Assurance, Page 11-i, Pages 11-1 through - 11-12 14 Pages
5	Letter - 97-ASP-014, Department of Energy to Department of Ecology, Request for Approval to Stage Out of Service Ancillary Drain Piping in the 222-S Laboratory
	Service Tunnels 2 Pages
6	Letter - 10/10/1997, Department of Ecology to Department of Energy, Re: Request for Approval to Stage Out of Service Ancillary Drain Piping in the 222-S Laboratory
	Service Tunnels (WA7890008967) (TSD: TS-2-1) 3 Pages
7	Letter: Waste Management Federal Services to US Department of Energy, WMH-0050463, Transmittal of Hanford Facility Agreement and Consent Order Change Control Form
	M-32-98-01, "219-S Construction Upgrade Schedule Revision (Interim Milestone M-32-02)" 12 Pages
8	Letter: Department of Ecology 02/11/1999, to Hanford Tri-Party Agreement, Re: Change Control From M-32-98-01, 219-S Construction Upgrade Schedule Revision,
	Interim Milestone M-32-02 3 pages
9	PowerPoint Presentation - Virtual Tour of the 219S Waste handling Facility 11 pages
10	PowerPoint Presentation - 222S Facility Briefing, EPA Inspection September 23, 2014 19 Pages
11	Building emergency Plan for the 222-S Laboratory Complex, ATS-MP-1036, Rev D-3, Dated 06/09/2014 34 Pages
12	Laboratory Procedure - Determination of Plutonium and Americium by Extraction with TRU Resin, LA-953-104, Rev J-0-C, Dated 09/05/2014 18 Pages
13	List of 222S Laboratory Complex Satellite Accumulation Areas 1 Page

AGENCY/COMPANY REPRESENTATIVE (PRINT):		TOC REPRESENTATIVE (PRINT):	
Jack Boller - Matt Vojik		Michael Greene - Jeff Voogd	
SIGNATURE:	DATE:	SIGNATURE:	DATE:

RECEIPT OF REGULATORY AND TANK FARM INFORMATION

TITLE:	DATE:	NUMBER:
EPA Inspection Document Request, 09.22.14	10/01/2014	TOC-RORI-14-075 Pg 2

REGULATORY AGENCY/COMPANY:	REPRESENTATIVE:
Environmental Protection Agency	Jack Boller - Matt Vojik

TOC REPRESENTATIVE:
Michael Greene - Jeff Voogd

This form is limited to the transmittal of unclassified and information only copies of tank farm records.

ITEM NO.	DOCUMENTS ISSUED (Includes Revision/Date and Title/Description)
14	PCB Inspection Checklist, Appendix B 222S Container Management Unit Inspection 08/18/2014 — 23 pages
15	Quarterly RCRA Inspection Checklist, Appendix C 222S Satellite Accumulation Area Inspection Sheet — 18 Pages
16	Universal Waste Inspections Checklist, Appendix D 222S Inspection Sheet for Universal Waste Accumulation Areas - June, July, August, September, 2014 — 24 Pages
17	Staging/Storage Inspection Checklist - June, July, August, 2014 — 57 Pages
18	Daily RCRA Inspections Checklist, Appendix A 222S TSD Container Management Unit Daily Inspection - June, July, August, 2014 — 65 Pages
19	Weekly RCRA Inspections Checklist, Appendix B 222S Container Management Unit Inspection (TSD, 90 Day) - June. July, August, September, 2014 — 293 Pages
20	Daily RCRA Inspection Checklist, Tank 219-S, Appendix C 222-S Complex Inspection / Sign-off Sheet (1 of 3) — 511 pages
21	Photos taken during the EPA inspection, inside and outside 222-S Laboratory. — 21 Photos
22	Photos taken during the EPA inspection, inside and outside 616 Building. — 12 Photos
23	Waste Profile Routing, WP-WRPsSC102DBR002, Rev 4, 241-C-102 Tank Farm Debris, including Environmental Restoration Disposal Facility Waste Profile Datasheet — 31 Pages
24	Waste Profile Routing, WP-WRPSAN106001, Rev 5, 241-AN-106 Tank Farm Debris, including Environmental Restoration Disposal Facility Waste Profile Data sheet — 29 Pages
25	616 Building - 616 Mixed Waste Pad and 616 Hazardous Waste Pad container inventory sheets. — 2 Pages
26	Check List 1, 616 Inspection Checklist, Inspect Waste Pad Areas and Active Containers, Records from 05/21/2014 to 09/17/2014 — 36 Pages
27	Photos of Waste Sites during the EPA Inspection, outside (only) 242-A Evaporator Building. — 2 Photos

AGENCY/COMPANY REPRESENTATIVE (PRINT):		TOC REPRESENTATIVE (PRINT):	
Jack Boller - Matt Vojik		Michael Greene - Jeff Voogd	
SIGNATURE:	DATE:	SIGNATURE:	DATE:

RECEIPT OF REGULATORY AND TANK FARM INFORMATION

TITLE:	DATE:	NUMBER:
EPA Inspection Document Request, 09.22.14	10/02/2014	TOC-RORI-14-076

REGULATORY AGENCY/COMPANY:	REPRESENTATIVE:
Environmental Protection Agency	Jack Boller- Matt Vojik

TOC REPRESENTATIVE:
Michael Greene - Jeff Voogd

This form is limited to the transmittal of unclassified and information only copies of tank farm records.

ITEM NO.	DOCUMENTS ISSUED (Includes Revision/Date and Title/Description)
1	Documented response to EPA request for information during EPA inspection of 222-S Laboratory, on 09/22/2014. (Linked to TOC-RORI-14-075)
	Request: Information for TRU (transuranic) Waste in 222-S Laboratory, Room 4-E
	Response: Prepared summary (with photo) , "TRU Waste in 222S Laboratory Room 4E TSD Accumulated on 06/30/2009, Lucinda Borneman, 10/02/2014." 2 Pages
	Photo contained in summary response previously cleared for release by WRPS Industrial Safety as part of TOC-RORI-14-075, "EPA Inspection Document Request 09.22.14"
	"PIC No. 22 - 222-S Lab Rm 4-E TRU Transuranic Samples"

AGENCY/COMPANY REPRESENTATIVE (PRINT):		TOC REPRESENTATIVE (PRINT):	
Jack Boller- Matt Vojik		Michael Greene - Jeff Voogd	
SIGNATURE:	DATE:	SIGNATURE:	DATE:

1

REGULATORY AGENCY INSPECTION ATTENDANCE ROSTER

Page 1 of 1

Inspection Title: EPA Inspection - 242-A

Inspection Number: RATD-014-069

Regulatory Agency: EPA - Ecology

Inspector: Matt Vojik, Jack Boller - Nancy Ware

Representative: Michael Greene - WRPS

Date: 09/22/14

Name of Attendee	Organization Company	Phone Number
Michael Greene	WRPS - EP	373-1582
Bryan Trimberger	DOE/ORP	376-2674
Nancy Ware	Ecology	372-7912
Jack Boller	EPA	206553-2953
MATT VOJIK	EPA	206-553-0716
JEFF VOOGD	WRPS	373-4101
JERRY CAMMANN	MSA-EIS	376-1564
TONY MCKARNS	DOE	376-8981
James T. Hamilton	WRPS	373-1511
VanBurgh, Erin M	WRPS	430-1020
Trimer, Glen C	WRPS	551-6613
DE Swanson	WRPS	373-9279

A-6006-180 (REV 0)

ATTENDANCE ROSTER

INSPECTION TITLE	DATE
(WRPS) EPA/ECOLOGY INSPECTION OF DANGEROUS WASTE GENERATOR ACTIVITIES AT THE 616 BUILDING, 242-A EVAPORATOR, AND 222-S LABORATORY - PREBRIEFING	September 22, 2014
	INSPECTION NUMBER 2014-069

AGENCY	MEETING LOCATION	FOLLOWUP TO
EPA/Ecology	Federal Building, Room G-58	

ATTENDEES

NAME	COMPANY/ORG.	PHONE NUMBER
JERRY CAMMANN	MSA-EIS	376-1554
Michael Greene	WRPS-EP	373-1582
Gene Grahs	PNNL	375-2575
Jack Williams Jr	CH2MHC-RP	376-4782
Jill Thomson	WCH, ESHQA	845-9455
TONY MCKARNS	DOE	376-8981
Jessica Joyner	WRPS, Env Prot	376-7533
JEFF VOGD	WRPS, ENV. PROT	373-4101
Steve Killay	WRPS Prod. Ops	727-7804
Glen Trimer	WRPS Waste Services	551-6013
DOUG SWENSON	WRPS WASTE SERVICES	373-9279
Bryan Trimberger	DOE/ORP	376-2674
Lori Huffman	DOE/ORP	3760104
Clifford Clark	DOE-RL	376-9333

ATTENDANCE ROSTER

INSPECTION TITLE	DATE
(WRPS) EPA/ECOLOGY INSPECTION OF DANGEROUS WASTE GENERATOR ACTIVITIES AT THE 616 BUILDING, 242-A EVAPORATOR, AND 222-S LABORATORY - PREBRIEFING	September 22, 2014
	INSPECTION NUMBER 2014-069

AGENCY	MEETING LOCATION	FOLLOWUP TO
EPA/Ecology	Federal Building, Room G-58	

ATTENDEES

NAME	COMPANY/ORG.	PHONE NUMBER
Jack Boller	EPA	2065532953
Matt Vojik	EPA	206-553-0716
Nancy Ware	Ecy	509-372-7912

REGULATORY AGENCY INSPECTION ATTENDANCE ROSTER

Page 1 of ___

Inspection Title: EPA 222-S Inspection Inspection Number: ___

Regulatory Agency: EPA and Ecology Inspector: Jack Boller - MATT VOJIK

Representative: Michael Greene - Lucinda Borneman Date: 09/23/14

Name of Attendee	Organization Company	Phone Number
Michael Greene	WRPS - Env. Prot.	373-1582
Dan Hansen	ATL - Lab Mng	373-2129
ERIC VAN MASON	WRPS - ENV 222-S	713-0457
DAVE MOSER	WRPS - 222-S MANAGEMENT	373-0488
TONY MCKAKNS	DOE/RL	376-8981
JERRY CAMMANN	MSA - EIS	376-1554
MATT VOJIK	EPA	206-553-0716
Jack Boller	EPA	206 553-2963
Kathy Conaway	Ecology	(509) 372-7890
Jacob Johnson	WRPS - HMC	373-3847
Grant McCalmant	WRPS - HMC	372-3028
Bryan Trinberger	DOE/ORP	376-2674
JEFF VOOGD	WRPS	373-4101
DOUG SWENSON	WRPS	373-9279
Glen Triner	WRPS	551-6013
Duane Renberger	WRPS Management	373-9636
Sandy Bedford	WRPS - Training	373-3293
X Robin Hudson	WRPS Rad-Con	373-2396
Julie Lawing	WRPS RadCon	373-2468
KJ Greenough	WRPS 222S Fac Mgmt	373-9541
Lucinda Borneman	WRPS 222S Env	373-2821
J.R. Prilucik	WRPS/222S I&C	373-3830
Edward Holbrook	Ecology	372-7909

A-6006-180 (REV 0)

REGULATORY AGENCY INSPECTION ATTENDANCE ROSTER

Page 1 of 1

Inspection Title: EPA Inspection - 616 Inspection Number: RAID = 014-069 Matt Vojik

Regulatory Agency: EPA - Ecology Inspector: Jack Boller - Nancy Ware

Representative: Michael Greene - WRPS Date: 09/22/14

Name of Attendee	Organization Company	Phone Number
Michael Greene	WRPS - EP	373-1582
Jerry Cammann	NSA - EIS	376-1554
Nancy Ware	Ecology	372-7912
Matt Vojik	EPA	206-553-0716
Jack Boller	EPA	206 553-2853
Eric Van Masso	TGRP - WRPS	509-713-0457
Lucinda Borneman	WRPS	373-2821
Bryan Trimberger	DOE ORP	376-2674
Rick Thompson	WRPS	372-1208
Glen Triner	WRPS	551-6013
Doug Swenson	WRPS	373-9279
Tom Tunner	WRPS	372-1208
Troy Cody	WRPS	373-4115
Jeff Voogd	WRPS	373-4101

ATTENDANCE ROSTER

INSPECTION TITLE	DATE
(WRPS) EPA/ECOLOGY INSPECTION OF DANGEROUS WASTE GENERATOR ACTIVITIES AT THE 616 BUILDING, 242-A EVAPORATOR, AND 222-S LABORATORY – CLOSEOUT	September 24, 2014
	INSPECTION NUMBER 2014-069

AGENCY	MEETING LOCATION	FOLLOWUP TO
EPA/Ecology	Federal Building, Room G-58	

ATTENDEES

NAME	COMPANY/ORG.	PHONE NUMBER
Jerry Cammann	MSA-EIS	376-1554
Eugene Grohs	PNNL	375.2575
Joe Williams Jr.	CHPRC-EP	376-4782
Lorna Dittmer	CHPRC/EP	376-7017
Eric Van Mason	WRPS - ENV	713-6457
Deb Alexander	Ecology	372-7896
Karl Hadley	WCH	536-4898
Matt Vojik	EPA	206.553-0716
Jack Boller	EPA	206 553-2953
Michael Greene	WRPS / EP	373-1582
Tony McKarns	DOE	376-8981
Tom Ferns	DOE-RL	376-7474
Jennifer Otero	MSA	373-0275
Dashia Huff	MSA	373-6531

ATTENDANCE ROSTER

INSPECTION TITLE	DATE
(WRPS) EPA/ECOLOGY INSPECTION OF DANGEROUS WASTE GENERATOR ACTIVITIES AT THE 616 BUILDING, 242-A EVAPORATOR, AND 222-S LABORATORY – CLOSEOUT	September 24, 2014
	INSPECTION NUMBER 2014-069

AGENCY	MEETING LOCATION	FOLLOWUP TO
EPA/Ecology	Federal Building, Room G-58	

ATTENDEES

NAME	COMPANY/ORG.	PHONE NUMBER
Doug Swenson	WRPS/Waste Services	373-9279
Glen Triner	WRPS/Waste Services	551-6013
Jessica Joyner	WRPS Env Prot	376-7533
CANDICE MARPLE	MSA/EIS	373-6742
Lucinda Borneman	WRPS/Env	373-2821
JEFF VOOGD	WRPS / ENV	373-4101
Lana Strickling	MSA / ENV	376-3583
Bryan Trimberger	DOE/ORP	376-2674
Kathy Conaway	ECY	372-7890
Wayne Johnson	WRPS / EN	373-0714

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by:	Date: 09292008
Month Day Year	Approved by:	Date: 09292008
08252008		

I. This form is submitted to: (place an "X" in the appropriate box)

☐	Request modification to a final status permit (commonly called a "Part B" permit)
☒	Request a change under interim status
☐	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
☐	Establish interim status because of the wastes newly regulated on: (Date)
	List waste codes:

II. EPA/State ID Number

WA7890008967

III. Name of Facility

US Department of Energy - Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

825 Jadwin

City or Town	State	ZIP Code
Richland	WA	99352

County Code (If known)	County Name
005	Benton

B. Land Type	C. Geographic Location Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	D. Facility Existence Date Month Day Year
F	Refer to TOPO Map (Section XV.)		03 02 1943

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 450

City or Town	State	ZIP Code
Richland	WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)		
Name (last)	**(first)**	
Olinger	Shirley	
Job Title	**Phone Number (area code and number)**	
Manager	(509) 372-3062	
Contact Address		
Street or P.O. Box		
P.O. Box 450		
City or Town	**State**	**ZIP Code**
Richland	WA	99352

VII. Facility Operator Information	
A. Name	**Phone Number**
Department of Energy Owner/Operator Washington River Protection Solutions, LLC Co-Operator for 222-S Dangerous and Mixed Waste TSD Unit*	(509) 372-3062 (509) 372-9138*
Street or P.O. Box	
P.O. Box 450 P.O. Box 850*	

City or Town	State	ZIP Code
Richland	WA	99352

B. Operator Type	F

C. Does the name in VII.A reflect a proposed change in operator?	☐ Yes ☒ No Co-Operator* change
If yes, provide the scheduled date for the change:	Month: 10 Day: 01 Year: 2008

D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.	☐ Yes ☒ No

VIII. Facility Owner Information	
A. Name	**Phone Number (area code and number)**
Shirley J Olinger, Operator/Facility-Property Owner	(509) 372-3062
Street or P.O. Box	
P.O. Box 450	

City or Town	State	ZIP Code
Richland	WA	99352

B. Owner Type	F

C. Does the name in VIII.A reflect a proposed change in owner?	☐ Yes ☒ No
If yes, provide the scheduled date for the change:	Month Day Year

IX. NAICS Codes (5/6 digit codes)													
A. First							**B. Second**						
5	6	2	2	1		Waste Treatment & Disposal	9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs
C. Third							**D. Fourth**						
5	4	1	7	1		Research & Development in the Physical, Engineering, & Life Sciences							

X. Other Environmental Permits (see instructions)

A. Permit Type	B. Permit Number	C. Description
E	FF-01	Hanford Site Radioactive Air Emissions License #FF-01 Emission Unit ID: 254 and 337. (296-S-21 and 296-S-16 Stacks, respectively)

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

This unit was previously known as the *222-S Laboratory Complex*. The name was changed to the *222-S Dangerous and Mixed Waste TSD Unit* to clarify the boundaries of the TSD units subject to this Permit. 'TSD component' is used to define a subdivision of the overall TSD unit.

The 222-S Dangerous and Mixed Waste TSD Unit includes four TSD components: 219-S Waste Handling Facility, 222-S Dangerous and Mixed Waste Storage Area (DMWSA), Room 4-E container storage area (Room 4-E), and the northern portion of Room 2-B container storage area (Room 2-B).

The 219-S Waste Handling Facility includes the 219-S Tank System (Tanks 101, 102, 103, and 104 and ancillary equipment), operating gallery, and sample gallery, and is located northeast of the 222-S Laboratory building. The DMWSA is located north of the 222-S Laboratory building. Rooms 2-B and 4-E are located within (north side) the 222-S Laboratory building, which is located in the 200 West Area of the Hanford Facility. The 222-S Laboratory began laboratory and waste management operations in June 1951.

S01 Storage in Containers

The maximum process design capacity for container storage is 28,470 liters. Containers containing dangerous and/or mixed waste are stored in the DMWSA, Room 4-E, and the northern portion of Room 2-B.

S02 Storage in Tanks

The 219-S Waste Handling Facility houses the 219-S Tank System, which comprises four tanks, three active and one inactive (tanks 101, 102, 104, and 103 respectively). Tank 103 is located within the 219-S Tank System, but was drained, isolated, and rinsed and is no longer used for waste management.

The maximum process design capacity for tank storage is 37,472 liters. Tanks 101, 102, and 104 are used for dangerous and mixed waste storage.

T01 Treatment in Tanks

The maximum process design capacity for treatment in tanks is 37,472 liters. Tanks 101, 102, and 104 are used for dangerous and mixed waste treatment.

Note: Although tank 201(Page 26, (Figure 219-S Waste Handling Facility) is indicated as being within the TSD unit boundary, its sole function is to provide caustic solution for waste treatment within Tanks 101, 102, and 104. Mixed and/or dangerous waste is not treated, stored, or disposed of within Tank 201, and therefore this tank is not considered a permitted TSD component.

WL01 and WL02 addresses lab packs containing state-only waste.

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons and 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification*.

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes								
Line Number		A. Process Codes (enter code)			B. Process Design Capacity 1. Amount	B. Process Design Capacity 2. Unit of Measure (enter code)	C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B Process Design Capacity 1. Amount	B Process Design Capacity 2. Unit of Measure (enter code)	C. Process Total Number of Units	D. Process Description
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1	S	0	2	37,472	L	003		1							
	2	T	0	1	37,472	L	003		2							
	3	S	0	1	28,470	L	003		3							
	4								4							
	5								5							
	6								6							
	7								7							
	8								8							
	9								9							
1	0							1	0							
1	1							1	1							
1	2							1	2							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
1	9							1	9							
2	0							2	0							
2	1							2	1							
2	2							2	2							
2	3							2	3							
2	4							2	4							
2	5							2	5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Processes (1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
X 1	D 0 0 2	400	P	S 0 1 T 0 1	
X 2	D 0 0 1	100	P	S 0 2 T 0 1	
X 3	D 0 0 2				Included with above
1	D 0 0 1	283,955	K	S 0 2 T 0 1	
2	D 0 0 2		K	S 0 2 T 0 1	
3	D 0 0 3		K	S 0 2 T 0 1	
4	D 0 0 4		K	S 0 2 T 0 1	
5	D 0 0 5		K	S 0 2 T 0 1	
6	D 0 0 6		K	S 0 2 T 0 1	
7	D 0 0 7		K	S 0 2 T 0 1	
8	D 0 0 8		K	S 0 2 T 0 1	
9	D 0 0 9		K	S 0 2 T 0 1	
10	D 0 1 0		K	S 0 2 T 0 1	
11	D 0 1 1		K	S 0 2 T 0 1	
12	D 0 1 8		K	S 0 2 T 0 1	
13	D 0 1 9		K	S 0 2 T 0 1	
14	D 0 2 2		K	S 0 2 T 0 1	
15	D 0 2 8		K	S 0 2 T 0 1	
16	D 0 2 9		K	S 0 2 T 0 1	
17	D 0 3 0		K	S 0 2 T 0 1	
18	D 0 3 3		K	S 0 2 T 0 1	
19	D 0 3 4		K	S 0 2 T 0 1	
20	D 0 3 5		K	S 0 2 T 0 1	
21	D 0 3 6		K	S 0 2 T 0 1	
22	D 0 3 8		K	S 0 2 T 0 1	
23	D 0 3 9		K	S 0 2 T 0 1	
24	D 0 4 0		K	S 0 2 T 0 1	
25	D 0 4 1		K	S 0 2 T 0 1	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process (1) Process Codes	D. Process (2) Process Description [If a code is not entered in D(1)]
26	D 0 4 3		K	S 0 2 T 0 1	
27	W P 0 1		K	S 0 2 T 0 1	
28	W P 0 2		K	S 0 2 T 0 1	
29	W T 0 1		K	S 0 2 T 0 1	
30	W T 0 2		K	S 0 2 T 0 1	
31	F 0 0 1		K	S 0 2 T 0 1	
32	F 0 0 2		K	S 0 2 T 0 1	
33	F 0 0 3		K	S 0 2 T 0 1	
34	F 0 0 4		K	S 0 2 T 0 1	
35	F 0 0 5		K	S 0 2 T 0 1	
36	F 0 3 9		K	S 0 2 T 0 1	
37	D 0 0 1	48,840	K	S 0 1	
38	D 0 0 2		K	S 0 1	
39	D 0 0 3		K	S 0 1	
40	D 0 0 4		K	S 0 1	
41	D 0 0 5		K	S 0 1	
42	D 0 0 6		K	S 0 1	
43	D 0 0 7		K	S 0 1	
44	D 0 0 8		K	S 0 1	
45	D 0 0 9		K	S 0 1	
46	D 0 1 0		K	S 0 1	
47	D 0 1 1		K	S 0 1	
48	D 0 1 2		K	S 0 1	
49	D 0 1 3		K	S 0 1	
50	D 0 1 4		K	S 0 1	
51	D 0 1 5		K	S 0 1	
52	D 0 1 6		K	S 0 1	
53	D 0 1 7		K	S 0 1	
54	D 0 1 8		K	S 0 1	
55	D 0 1 9		K	S 0 1	
56	D 0 2 0		K	S 0 1	
57	D 0 2 1		K	S 0 1	
58	D 0 2 2		K	S 0 1	
59	D 0 2 3		K	S 0 1	
60	D 0 2 4		K	S 0 1	
61	D 0 2 5		K	S 0 1	
62	D 0 2 6		K	S 0 1	
63	D 0 2 7		K	S 0 1	
64	D 0 2 8		K	S 0 1	
65	D 0 2 9		K	S 0 1	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
66	D030		K	S01	
67	D031		K	S01	
68	D032		K	S01	
69	D033		K	S01	
70	D034		K	S01	
71	D035		K	S01	
72	D036		K	S01	
73	D037		K	S01	
74	D038		K	S01	
75	D039		K	S01	
76	D040		K	S01	
77	D041		K	S01	
78	D042		K	S01	
79	D043		K	S01	
80	WPCB		K	S01	
81	WP01		K	S01	
82	WP02		K	S01	
83	WP03		K	S01	
84	WSC2		K	S01	
85	WT01		K	S01	
86	WT02		K	S01	
87	F001		K	S01	
88	F002		K	S01	
89	F003		K	S01	
90	F004		K	S01	
91	F005		K	S01	
92	F006		K	S01	
93	F007		K	S01	
94	F008		K	S01	
95	F009		K	S01	
96	F010		K	S01	
97	F011		K	S01	
98	F012		K	S01	
99	F019		K	S01	
100	F020		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
101	F021		K	S01	
102	F022		K	S01	
103	F023		K	S01	
104	F026		K	S01	
105	F027		K	S01	
106	F028		K	S01	
107	F039		K	S01	
108	U001		K	S01	
109	U002		K	S01	
110	U003		K	S01	
111	U004		K	S01	
112	U005		K	S01	
113	U006		K	S01	
114	U007		K	S01	
115	U008		K	S01	
116	U009		K	S01	
117	U010		K	S01	
118	U011		K	S01	
119	U012		K	S01	
120	U014		K	S01	
121	U015		K	S01	
122	U016		K	S01	
123	U017		K	S01	
124	U018		K	S01	
125	U019		K	S01	
126	U020		K	S01	
127	U021		K	S01	
128	U022		K	S01	
129	U023		K	S01	
130	U024		K	S01	
131	U025		K	S01	
132	U026		K	S01	
133	U027		K	S01	
134	U028		K	S01	
135	U029		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
136	U030		K	S01	
137	U031		K	S01	
138	U032		K	S01	
139	U033		K	S01	
140	U034		K	S01	
141	U035		K	S01	
142	U036		K	S01	
143	U037		K	S01	
144	U038		K	S01	
145	U039		K	S01	
146	U041		K	S01	
147	U042		K	S01	
148	U043		K	S01	
149	U044		K	S01	
150	U045		K	S01	
151	U046		K	S01	
152	U047		K	S01	
153	U048		K	S01	
154	U049		K	S01	
155	U050		K	S01	
156	U051		K	S01	
157	U052		K	S01	
158	U053		K	S01	
159	U055		K	S01	
160	U056		K	S01	
161	U057		K	S01	
162	U058		K	S01	
163	U059		K	S01	
164	U060		K	S01	
165	U061		K	S01	
166	U062		K	S01	
167	U063		K	S01	
168	U064		K	S01	
169	U066		K	S01	
170	U067		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
171	U068		K	S01	
172	U069		K	S01	
173	U070		K	S01	
174	U071		K	S01	
175	U072		K	S01	
176	U073		K	S01	
177	U074		K	S01	
178	U075		K	S01	
179	U076		K	S01	
180	U077		K	S01	
181	U078		K	S01	
182	U079		K	S01	
183	U080		K	S01	
184	U081		K	S01	
185	U082		K	S01	
186	U083		K	S01	
187	U084		K	S01	
188	U085		K	S01	
189	U086		K	S01	
190	U087		K	S01	
191	U088		K	S01	
192	U089		K	S01	
193	U090		K	S01	
194	U091		K	S01	
195	U092		K	S01	
196	U093		K	S01	
197	U094		K	S01	
198	U095		K	S01	
199	U096		K	S01	
200	U097		K	S01	
201	U098		K	S01	
202	U099		K	S01	
203	U101		K	S01	
204	U102		K	S01	
205	U103		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
206	U105		K	S01	
207	U106		K	S01	
208	U107		K	S01	
209	U108		K	S01	
210	U109		K	S01	
211	U110		K	S01	
212	U111		K	S01	
213	U112		K	S01	
214	U113		K	S01	
215	U114		K	S01	
216	U115		K	S01	
217	U116		K	S01	
218	U117		K	S01	
219	U118		K	S01	
220	U119		K	S01	
221	U120		K	S01	
222	U121		K	S01	
223	U122		K	S01	
224	U123		K	S01	
225	U124		K	S01	
226	U125		K	S01	
227	U126		K	S01	
228	U127		K	S01	
229	U128		K	S01	
230	U129		K	S01	
231	U130		K	S01	
232	U131		K	S01	
233	U132		K	S01	
234	U133		K	S01	
235	U134		K	S01	
236	U135		K	S01	
237	U136		K	S01	
238	U137		K	S01	
239	U138		K	S01	
240	U140		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process (1) Process Codes	D. Process (2) Process Description [If a code is not entered in D(1)]
241	U141		K	S01	
242	U142		K	S01	
243	U143		K	S01	
244	U144		K	S01	
245	U145		K	S01	
246	U146		K	S01	
247	U147		K	S01	
248	U148		K	S01	
249	U149		K	S01	
250	U150		K	S01	
251	U151		K	S01	
252	U152		K	S01	
253	U153		K	S01	
254	U154		K	S01	
255	U155		K	S01	
256	U156		K	S01	
257	U157		K	S01	
258	U158		K	S01	
259	U159		K	S01	
260	U160		K	S01	
261	U161		K	S01	
262	U162		K	S01	
263	U163		K	S01	
264	U164		K	S01	
265	U165		K	S01	
266	U166		K	S01	
267	U167		K	S01	
268	U168		K	S01	
269	U169		K	S01	
270	U170		K	S01	
271	U171		K	S01	
272	U172		K	S01	
273	U173		K	S01	
274	U174		K	S01	
275	U176		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
276	U177		K	S01	
277	U178		K	S01	
278	U179		K	S01	
279	U180		K	S01	
280	U181		K	S01	
281	U182		K	S01	
282	U183		K	S01	
283	U184		K	S01	
284	U185		K	S01	
285	U186		K	S01	
286	U187		K	S01	
287	U188		K	S01	
288	U189		K	S01	
289	U190		K	S01	
290	U191		K	S01	
291	U192		K	S01	
292	U193		K	S01	
293	U194		K	S01	
294	U199		K	S01	
295	U200		K	S01	
296	U201		K	S01	
297	U202		K	S01	
298	U203		K	S01	
299	U204		K	S01	
300	U205		K	S01	
301	U206		K	S01	
302	U207		K	S01	
303	U208		K	S01	
304	U209		K	S01	
305	U210		K	S01	
306	U211		K	S01	
307	U212		K	S01	
308	U213		K	S01	
309	U214		K	S01	
310	U215		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
311	U216		K	S01	
312	U217		K	S01	
313	U218		K	S01	
314	U219		K	S01	
315	U220		K	S01	
316	U221		K	S01	
317	U222		K	S01	
318	U223		K	S01	
319	U225		K	S01	
320	U226		K	S01	
321	U227		K	S01	
322	U228		K	S01	
323	U234		K	S01	
324	U235		K	S01	
325	U236		K	S01	
326	U237		K	S01	
327	U238		K	S01	
328	U239		K	S01	
329	U240		K	S01	
330	U243		K	S01	
331	U244		K	S01	
332	U246		K	S01	
333	U247		K	S01	
334	U248		K	S01	
335	U249		K	S01	
336	U271		K	S01	
337	U278		K	S01	
338	U279		K	S01	
339	U280		K	S01	
340	U328		K	S01	
341	U353		K	S01	
342	U359		K	S01	
343	U364		K	S01	
344	U367		K	S01	
345	U372		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
346	U373		K	S01	
347	U387		K	S01	
348	U389		K	S01	
349	U394		K	S01	
350	U395		K	S01	
351	U404		K	S01	
352	U409		K	S01	
353	U410		K	S01	
354	U411		K	S01	
355	P001		K	S01	
356	P002		K	S01	
357	P003		K	S01	
358	P004		K	S01	
359	P005		K	S01	
360	P006		K	S01	
361	P007		K	S01	
362	P008		K	S01	
363	P009		K	S01	
364	P010		K	S01	
365	P011		K	S01	
366	P012		K	S01	
367	P013		K	S01	
368	P014		K	S01	
369	P015		K	S01	
370	P016		K	S01	
371	P017		K	S01	
372	P018		K	S01	
373	P020		K	S01	
374	P021		K	S01	
375	P022		K	S01	
376	P023		K	S01	
377	P024		K	S01	
378	P026		K	S01	
379	P027		K	S01	
380	P028		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
381	P029		K	S01	
382	P030		K	S01	
383	P031		K	S01	
384	P033		K	S01	
385	P034		K	S01	
386	P036		K	S01	
387	P037		K	S01	
388	P038		K	S01	
389	P039		K	S01	
390	P040		K	S01	
391	P041		K	S01	
392	P042		K	S01	
393	P043		K	S01	
394	P044		K	S01	
395	P045		K	S01	
396	P046		K	S01	
397	P047		K	S01	
398	P048		K	S01	
399	P049		K	S01	
400	P050		K	S01	
401	P051		K	S01	
402	P054		K	S01	
403	P056		K	S01	
404	P057		K	S01	
405	P058		K	S01	
406	P059		K	S01	
407	P050		K	S01	
408	P062		K	S01	
409	P063		K	S01	
410	P064		K	S01	
411	P065		K	S01	
412	P066		K	S01	
413	P067		K	S01	
414	P068		K	S01	
415	P069		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
416	P 070		K	S01	
417	P 071		K	S01	
418	P 072		K	S01	
419	P 073		K	S01	
420	P 074		K	S01	
421	P 075		K	S01	
422	P 076		K	S01	
423	P 077		K	S01	
424	P 078		K	S01	
425	P 081		K	S01	
426	P 082		K	S01	
427	P 084		K	S01	
428	P 085		K	S01	
429	P 087		K	S01	
430	P 088		K	S01	
431	P 089		K	S01	
432	P 092		K	S01	
433	P 093		K	S01	
434	P 094		K	S01	
435	P 095		K	S01	
436	P 096		K	S01	
437	P 097		K	S01	
438	P 098		K	S01	
439	P 099		K	S01	
440	P 101		K	S01	
441	P 102		K	S01	
442	P 103		K	S01	
443	P 104		K	S01	
444	P 105		K	S01	
445	P 106		K	S01	
446	P 107		K	S01	
447	P 108		K	S01	
448	P 109		K	S01	
449	P 110		K	S01	
450	P 111		K	S01	

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D(1)]
451	P112		K	S01	
452	P113		K	S01	
453	P114		K	S01	
454	P115		K	S01	
455	P116		K	S01	
456	P118		K	S01	
457	P119		K	S01	
458	P120		K	S01	
459	P121		K	S01	
460	P122		K	S01	
461	P123		K	S01	
462	P127		K	S01	
463	P128		K	S01	
464	P185		K	S01	
465	P188		K	S01	
466	P189		K	S01	
467	P190		K	S01	
468	P191		K	S01	
469	P192		K	S01	
470	P194		K	S01	
471	P196		K	S01	
472	P197		K	S01	
473	P198		K	S01	
474	P199		K	S01	
475	P201		K	S01	
476	P202		K	S01	
477	P203		K	S01	
478	P204		K	S01	
479	P205		K	S01	
480	WL02		K	S01	
481	WL01		K	S01	

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

Topographic map is located in the Ecology Library

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to instructions for more detail).

XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator Name and Official Title (type or print)	**Signature**	**Date Signed**
Shirley J. Olinger, Manager U.S. Department of Energy Office of River Protection	Shirley J. Olinger	9/24/08
Co-Operator* Name and Official Title (type or print)	**Signature**	**Date Signed**
William J. Johnson President and Project Manager Washington River Protection Solutions, LLC	William J. Johnson	9/09/08

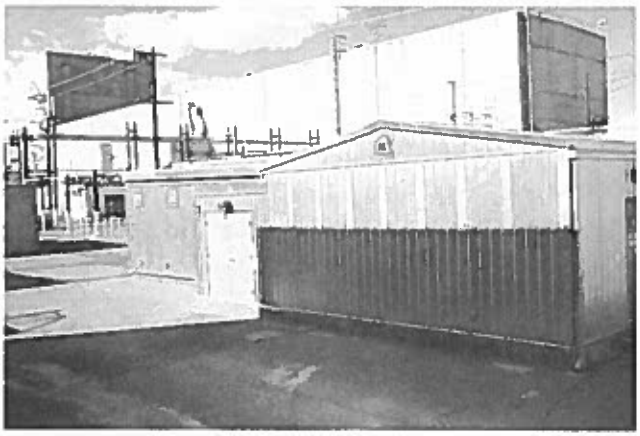
Co-Operator – Address and Telephone Number*

P.O. Box 850
Richland, WA 99352
(509) 372-9138

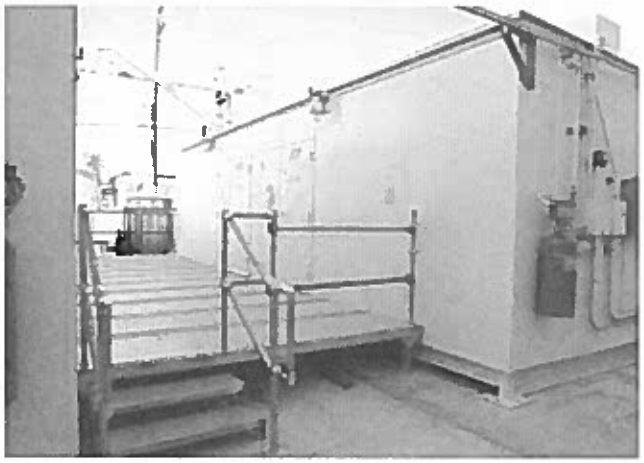
Facility-Property Owner Name and Official Title (type or print)	**Signature**	**Date Signed**
Shirley J. Olinger, Manager U.S. Department of Energy Office of River Protection	Shirley J. Olinger	9/24/08

Comments
In Section VII, Facility Operator Information, there is no change to DOE as the Facility Owner/Operator; only a change in Co-Operator*. The change in Co-Operator* will be effective October 1, 2008.

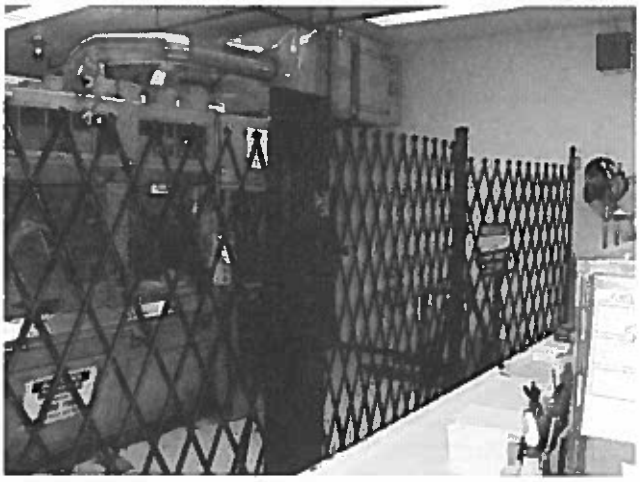
222-S Dangerous and Mixed Waste TSD Components



219-S Waste Handling Facility 00100005-2CN
Photo Taken 2000



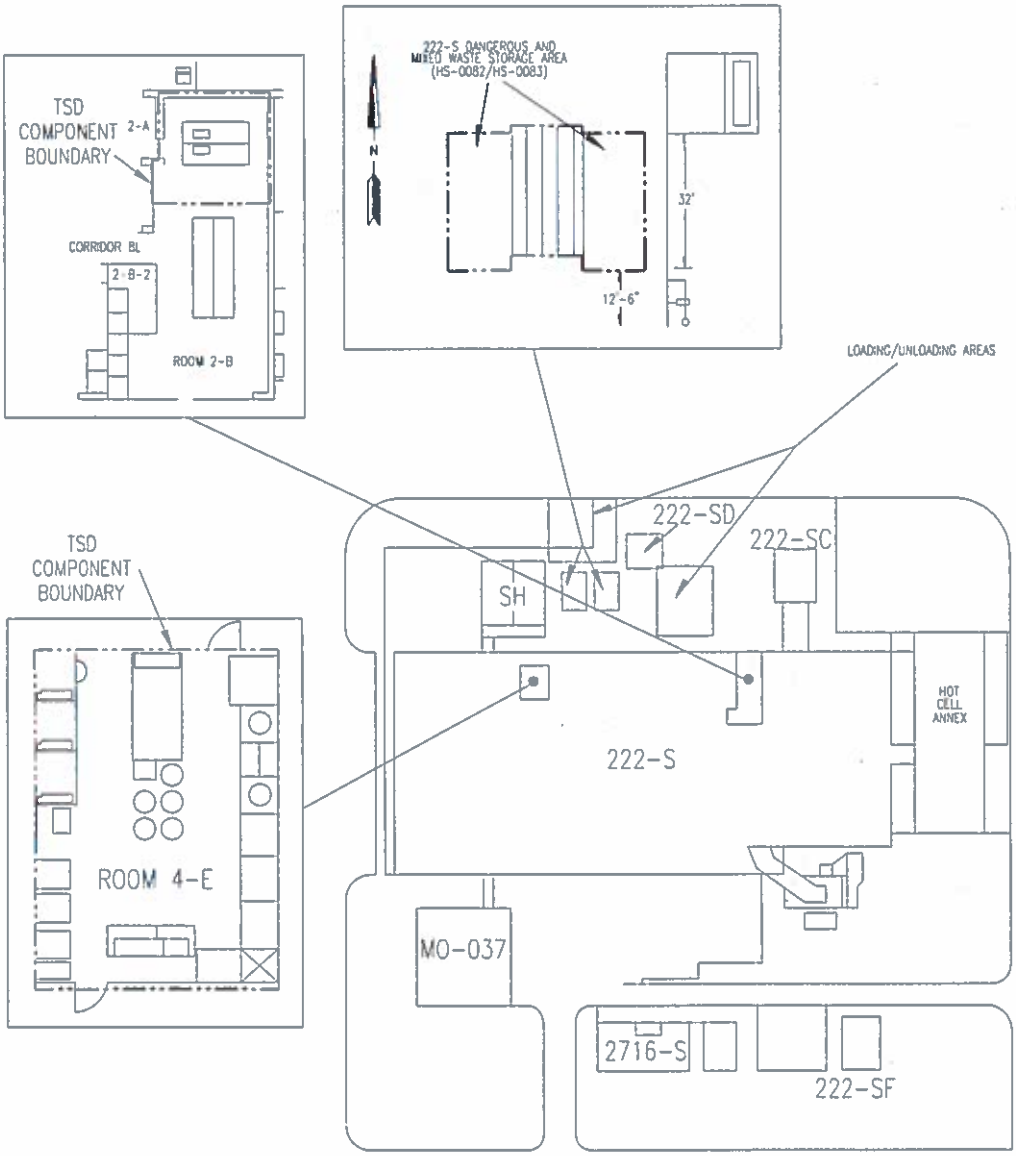
Dangerous and Mixed Waste Storage Area 98110210-13.JPG
Photo Taken 1998



Room 2-B Photo Taken 2006

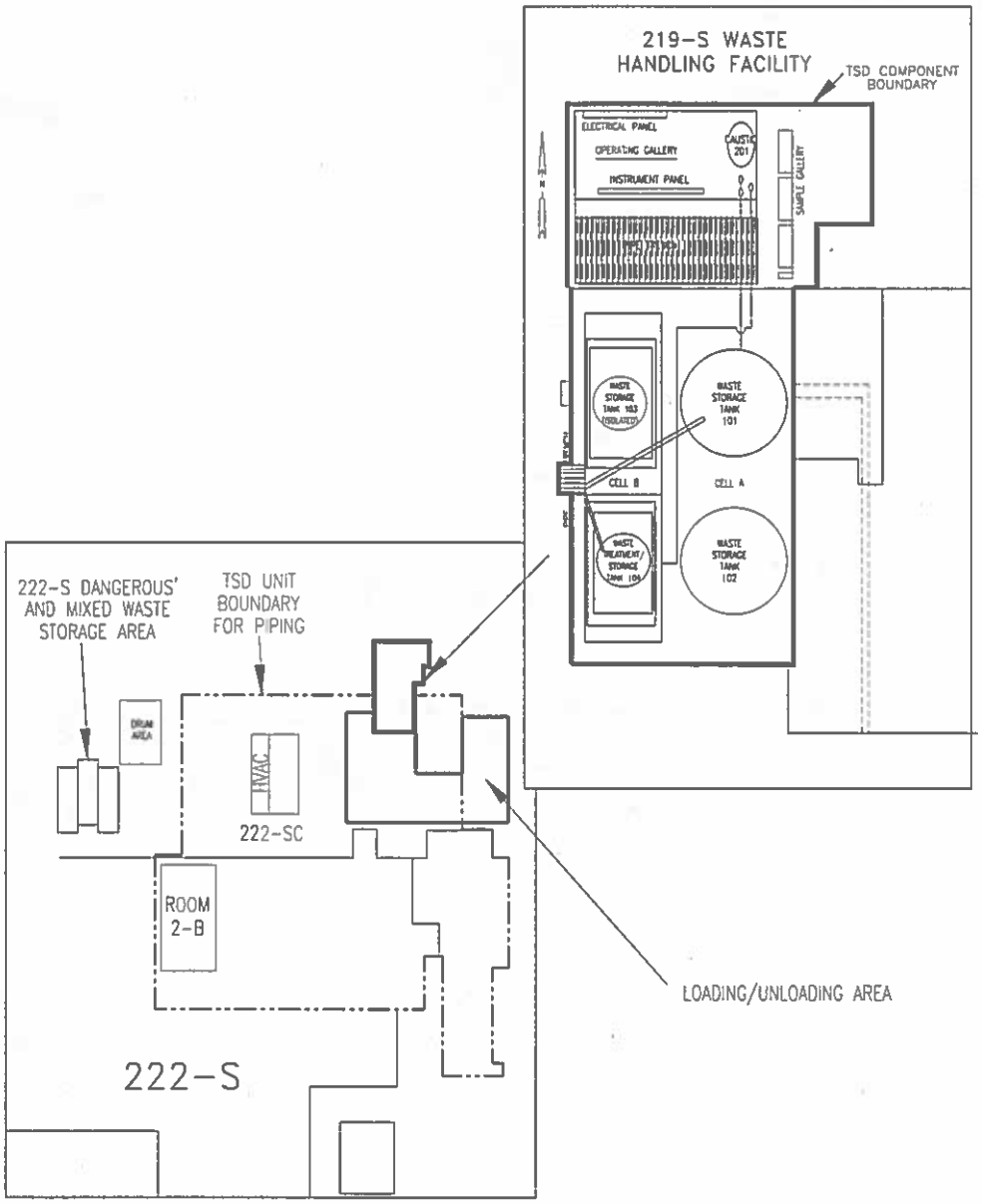
Room 4-E Photo Taken 2006

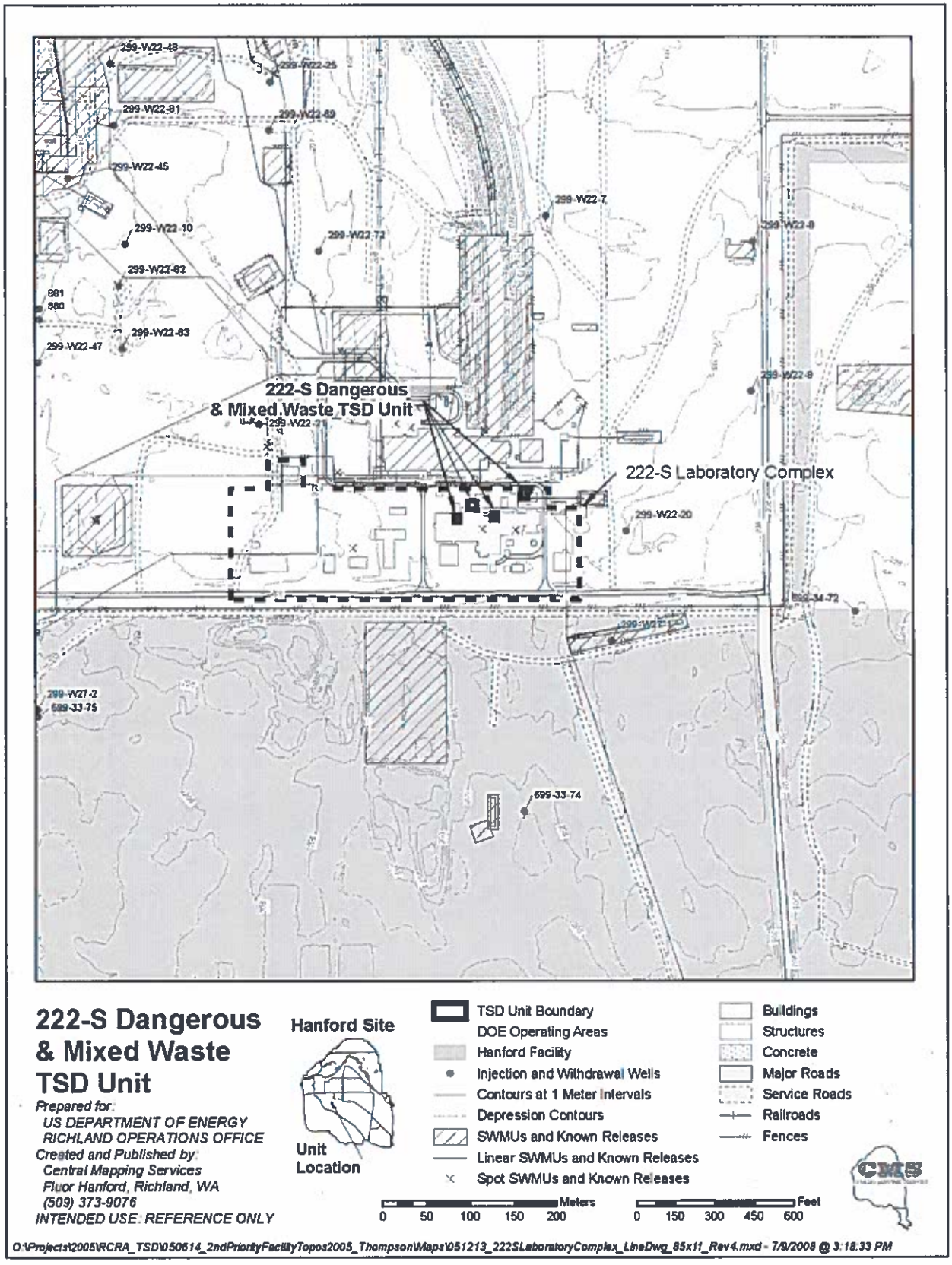
Container Storage Areas



CONTAINER STORAGE AREAS

Tank System Treatment and Storage Area

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299-W22-8
299-W22-82
881
880
299-W22-83
299-W22-47
299-W22-9
222-S Dangerous
& Mixed Waste TSD Unit
299-W22-71
222-S Laboratory Complex
299-W22-20
299-W27-2
699-33-75
699-33-74
222-S Dangerous & Mixed Waste TSD Unit
Prepared for:
US DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
Created and Published by:
Central Mapping Services
Fluor Hanford, Richland, WA
(509) 373-9076
INTENDED USE: REFERENCE ONLY
Hanford Site
Unit Location
TSD Unit Boundary
DOE Operating Areas
Hanford Facility
Injection and Withdrawal Wells
Contours at 1 Meter Intervals
Depression Contours
SWMUs and Known Releases
Linear SWMUs and Known Releases
Spot SWMUs and Known Releases
Buildings
Structures
Concrete
Major Roads
Service Roads
Railroads
Fences
Meters
0 50 100 150 200
Feet
0 150 300 450 600
O:\Projects\2005\RCRA_TSD\050614_2ndPriorityFacilityTopos2005_Thompson\Maps\051213_222SLaboratoryComplex_LineDwg_85x11_Rev4.mxd - 7/9/2008 @ 3:18:33 PM

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
J. A. Winterhalder, WMH (A. R. Sherwood, 376-6391)	H. E. Bilson, RL	WMH-9950463

Subject: TRANSMITTAL OF HANFORD FACILITY AGREEMENT AND CONSENT ORDER CHANGE CONTROL FORM M-32-98-01, "219-S CONSTRUCTION UPGRADE SCHEDULE REVISION (INTERIM MILESTONE M-32-02)"

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		R. T. Wilde	H6-10	
		J. A. Winterhalder	H6-21	X
		RCRA File	H6-21	
		WMH Legal	H6-10	
		LB/File	H6-26	X

WASTE MANAGEMENT FEDERAL SERVICES
OF HANFORD, INC.
A WASTE MANAGEMENT COMPANY

P.O. Box 700
Richland, WA 99352-0700

January 20, 1999

WMH-9950463

Ms. H. E. Bilson, Director
Waste Management Program
U.S. Department of Energy S7-41
Richland Operations Office
Post Office Box 550
Richland, Washington 99352

Dear Ms. Bilson:

TRANSMITTAL OF HANFORD FACILITY AGREEMENT AND CONSENT ORDER CHANGE CONTROL FORM M-32-98-01, "219-S CONSTRUCTION UPGRADE SCHEDULE REVISION (INTERIM MILESTONE M-32-02)"

Attached is a cover letter for transmittal to the State of Washington, Department of Ecology (Ecology) requesting their approval of Hanford Facility Agreement and Consent Order (Tri-Party Agreement) Change Control Form M-32-98-01, "219-S Construction Upgrade Schedule Revision (Interim Milestone M-32-02)." The Tri-Party Agreement change control form is an enclosure to the cover letter. **Ecology must receive this change control form, signed by the U.S. Department of Energy, Richland Operations Office, by no later than January 29, 1999 in order to satisfy Tri-Party Agreement imposed time limits for changes to milestones.**

As discussed on January 12, 1999 with Mr. Moses Jaraysi (Ecology), the change control form reflects a new interim milestone (and target date) completion date. The completion date change was necessary due to schedule revisions resulting from polychlorinated biphenyl related issues and project delays at the 219-S Waste Handling Facility. The change control form also indicates that tank 103 will be taken out of service and will be Resource Conservation and Recovery Act (RCRA) closed at the same time as the 219-S Waste Handling Facility. At Mr. Jaraysi's request, the cover letter outlines the reasons for leaving tank 103 in place, the tank waste samples to be taken, and the methods used to isolate the tank. The change control form also acknowledges that the existing 219-S Sampling System is adequate without further upgrades.

If Ecology approval of the change control form is received, the RCRA closure status of tank 103 and configuration of the 219-S Sampling System will be appropriately documented in the 222-S Laboratory Complex Part B Permit Application.

If you have any questions regarding this matter, please contact Mr. A. G. Miskho of Fluor Daniel Hanford, Inc. at 376-7313 or Ms. A. R. Sherwood of Waste Management Federal Services of Hanford, Inc. at 376-6391.

Very truly yours,

John A. Winterhalder, Manager
Environmental Services

kfc

Attachment

Mr. Moses N. Jaraysi
Project Manager Nuclear Waste Program
State of Washington
Department of Ecology
1314 West Fourth Avenue
Kennewick, Washington 99336

Dear Mr. Jaraysi:

TRANSMITTAL OF HANFORD FACILITY AGREEMENT AND CONSENT ORDER CHANGE CONTROL FORM M-32-98-01, "219-S CONSTRUCTION UPGRADE SCHEDULE REVISION (INTERIM MILESTONE M-32-02)"

The purpose of this letter is to request from the State of Washington, Department of Ecology (Ecology) approval of the enclosed Hanford Facility Agreement and Consent Order Change Control Form M-32-98-01, "219-S Construction Upgrade Schedule Revision (Interim Milestone M-32-02)."

As indicated in the change control form, completion of interim Milestone M-32-02, and target date M-32-02-T03, is revised to June 30, 1999. This change in completion date is due to polychlorinated biphenyl related issues that delayed the 219-S Waste Handling Facility upgrade project.

Also included in the change control form is the determination that Resource Conservation and Recovery Act of 1976 (RCRA) closure of Tank 103 will take place at the same time as RCRA closure of the 219-S Waste Handling Facility. A brief explanation of the difficulties and inefficiencies that would result should the tank undergo RCRA closure at this time follows.

Tank 103 is located in Cell B of the 219-S Waste Handling Facility and originally received 222-S hot cell wastes. Tank 103 is uniquely installed in a small concrete pit (for extra shielding due to hot cell wastes) within Cell B. The tank is suspended from, and is an integral part of, the pit's 18-inch thick coverblock. Because of the Tank 103 configuration and radiological hazards, it was not feasible to provide secondary containment for this tank. Therefore, a new tank (Tank 104) with secondary containment has been installed as a replacement for Tank 103. The same reasons that prevented installation of secondary containment also make it impractical to remove Tank 103 at this time.

Removal of Tank 103 would require removal of the coverblock and would precipitate the release of radioactive contamination from Tank 103's pit. In addition, removal of Tank 103 would require disconnecting the 219-S vessel ventilation system (Demister Tank 105 which is located above the Tank 103 coverblock) which would interrupt the operation of the three remaining tanks. Increased radioactive levels would further delay the project completion date and disconnection of the ventilation system would require installation of a temporary ventilation system for at least Tank 104 in order to allow continued waste transfers from the 222-S Laboratory to that tank.

Furthermore, other critical services, such as the waste transfer lines to double-shell tanks and level monitoring instrumentation for Tank 104, that support operation of the 219-S waste handling system are routed above the Tank 103 coverblock. These services would require removal and reinstallation, if Tank 103 were to be removed while the facility was still operational. Reinstallation of these critical services and the ventilation system, along with installation of a temporary ventilation system, will result in added difficulties and inefficiencies over leaving Tank 103 in place until facility closure. Therefore, it is more prudent to leave Tank 103 in place until the 219-S Waste Handling Facility undergoes RCRA closure at which time radiological hazards can best be handled and service interruptions will no longer matter. Enclosures 1 and 2 depict the proposed Tank 103 arrangement.

Before taking Tank 103 out of service, as much of the waste will be removed as is possible using the current pumping configuration. Prior to the Tank 103 waste inventory transfer, a RCRA protocol sample of the waste will be obtained and tested for the constituents contained on the Part A, Form 3 Permit Application for the 219-S Waste Handling Facility. Results will be placed into the operating record. The remaining heel is expected to be less than 1% of the tank's 1500-gallon capacity. Once these activities are complete, Tank 103 will be physically isolated. All Tank 103 piping and monitoring instrumentation will be disconnected and a pressure relief valve will be installed.

If you have any questions regarding this matter, please contact Ms. E. M. Bowers of my staff on (509) 373-9276.

Sincerely,

George H. Sanders, Administrator
Hanford Tri-Party Agreement

Enclosures

1. Proposed Configuration Tank 103 – Plan View
2. Proposed Configuration Tank 103 – Elevation View
3. Federal Facility Agreement and Consent Order
   Change Control Form M-32-98-01

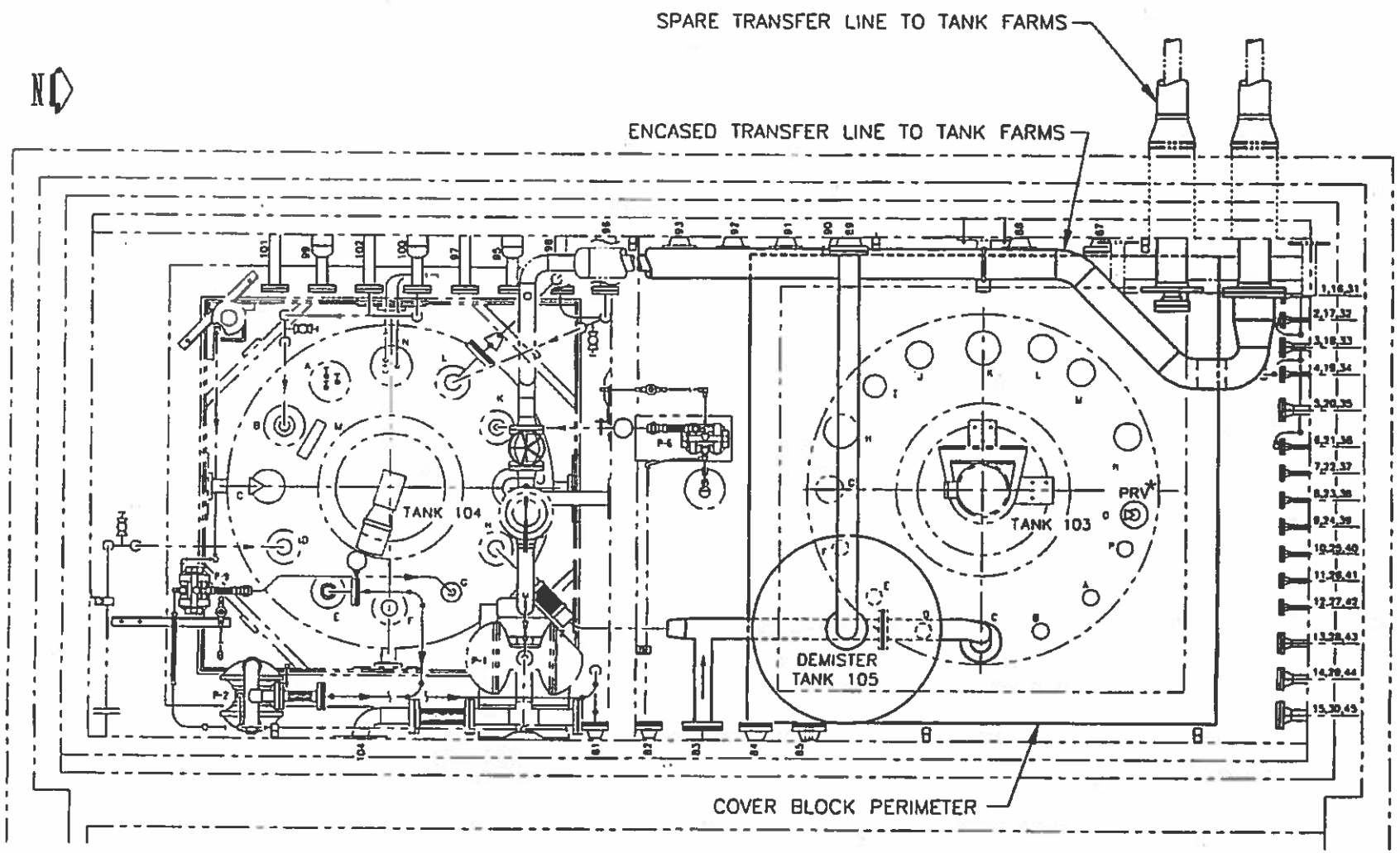
cc:

W. Adair, FDH	D. Powaukee, NPT
M. Cahill, WMH	A. Sherwood, WMH
J. Hertzel, FDH	J. Williams, FDH
R. Giroir, WMH	J. Wilkinson, CTUIR
R. Jim, YIN	J. Winterhalder, FDH

Enclosure 1

Proposed Configuration Tank 103 – Plan View

Consisting of 2 pages,
including cover page



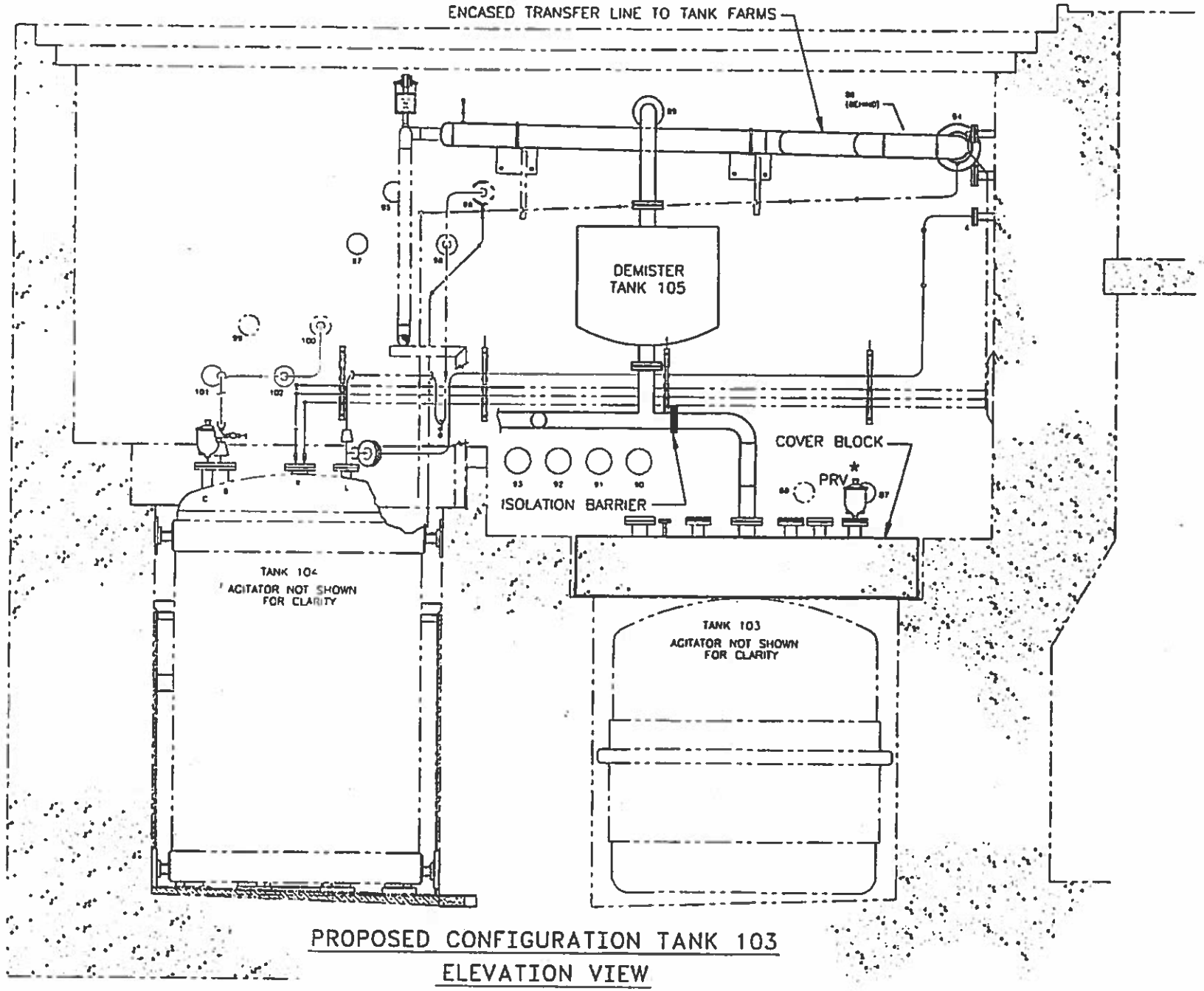
PROPOSED CONFIGURATION TANK 103
PLAN VIEW

*PRV - Pressure Relief Valve

Enclosure 2

Proposed Configuration Tank 103 - Elevation View

Consisting of 2 pages,
including cover page



PROPOSED CONFIGURATION TANK 103
ELEVATION VIEW

* pressure relief valve

Enclosure 3

Federal Facility Agreement and Consent Order
Change Control Form M-32-98-01

Consisting of 3 pages,
including cover page

Change Number	Federal Facility Agreement and Consent Order	Date
M-32-98-01	Change Control Form Do not use blue ink. Type or print using black ink.	January 20, 1999

Originator	Phone
Helen E. Bilson	(509) 376-1366

Class of Change

[ ] I – Signatories [X] II - Executive Manager [ ] III - Project Manager

Change Title

219-S Construction Upgrade Schedule Revision (Interim Milestone M-32-02)

Description/Justification of Change

This change request revises the due date of Tri-Party Agreement interim milestone M-32-02 and target date M-32-02-T03 as follows:

Note: ~~Strikeout~~ text indicates text to be removed and **shaded** text indicates text to be added.

M-32-02	Complete 219-S Tank Interim Status Actions	~~April 30, 1999~~ **June 30, 1999**
M-32-02-T03	Complete Construction Upgrades to 219-S Facility (Project W-178).	~~April 30, 1999~~ **June 30, 1999**

The interim milestone description and deliverable do not change.

Continued on Page 2 of 2.

Impact of Change

Approval of this change request will result in a schedule revision for interim milestone M-32-02 and for target date M-32-02-T03.

Affected Documents

Hanford Federal Facility Agreement and Consent Order, Action Plan, Appendix D, as amended.

Approvals

_____	_____	_____Approved
Disapproved DOE	Date	
_____	_____	_____Approved
Disapproved EPA	Date	
_____	_____	_____ Approved
Disapproved Ecology	Date	

Description/Justification of Change (cont'd)

Phase II of the 219-S compliance upgrades could not start until the liquid waste inventory in Tanks 101 and 102 was removed. This was scheduled to occur in January 1998. However, resolution of polychlorinated biphenyl (PCB) related issues and preparing for Mega Rule requirements in the January 1998 through August 1998 time frame delayed the waste removal until August 1998. The June 30, 1999 date reflects the revised project completion date.

Completion of this interim milestone will include the removal of Tank 103 from service. The Tank 103 waste inventory will be transferred to another tank. A small residual heel will remain (<1% of tank capacity). Tank 103 will be isolated and the heel allowed to evaporate to dryness. All service piping will be removed and a pressure relief valve installed. RCRA closure of Tank 103 will not take place until RCRA closure of the 219-S Waste Handling Facility

After completion of Project W-178, the 219-S Waste Handling Facility will contain a compliant dangerous waste tank system. The existing 219-S Sample System will not be upgraded. An evaluation of the system has been performed and the system found to be adequate for future use.

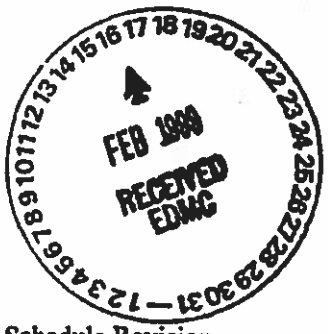
ADMIN. RECORD
H6-08

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

February 11, 1999



Mr. George H. Sanders, Administrator
Hanford Tri-Party Agreement
U.S. Department of Energy
P.O. Box 550
Richland, Washington 99352

Dear Mr. Sanders:

Re: Change Control Form M-32-98-01, 219-S Construction Upgrade Schedule Revision, Interim Milestone M-32-02

This letter is in response to your letter (99-EAP-140) dated January 28, 1999. Your letter transmitted a Tri-Party Agreement (TPA) Milestone change package to revise interim milestone M-32-02 for the upgrade of the tank system in the 219-S facility.

Washington State Department of Ecology (Ecology) staff have reviewed your letter and change package. In response, we recommended to our Program Manager, Michael Wilson, that he approve the referenced change package. Enclosed is the approved change package signed by Ecology.

Ecology also concurs with your request to delay the final closure of Tank 103 to coincide with the final closure of the 219-S facility. The immediate removal of this tank, as originally required by this milestone, will have adverse impact on the environment and on the critical operation of the 219-S tank system. You are requested to formally inform Ecology of the completion of all field construction activities aimed at isolating Tank 103.

If you have any questions regarding this letter, please contact me at (509) 736-3016, or Ms. Brenda Becker-Khaleel at (509) 736-3003.

Sincerely,

Moses Jaraysi, Waste Management Project Manager
Nuclear Waste Program

MJ:sb
Enclosure

cc:
Jeff Hertzel, FDH
Janice Williams, FDH
John Winterhalder, FDH
William Adair, DESH
Michael Cahill, WMH
Robert Giroir, WMH
Ana Sherwood, WMH
J.R. Wilkinson, CTUIR
Donna Powaukee, NPT
Russell Jim, YIN
Mary Lou Blazek, OOE
Administrative Record

Change Number | Federal Facility Agreement and Consent Order | Date

M-32-98-01 | Change Control Form | January 28, 1999

Do not use blue ink. Type or print using black ink.

Originator Helen E. Bilson | **Phone** (509) 376-1366

Class of Change

[ ] I - Signatories [X] II – Executive Manager [ ] III - Project Manager

Change Title

219-S Construction Upgrade Schedule Revision (Interim Milestone M-32-02)

Description/Justification of Change

This change request revises the due date of Tri-Party Agreement interim milestone M-32-02 and target date M-32-02-T03 as follows:

Note: ~~Strikeout~~ text indicates text to be removed and [redacted] text indicates text to be added.

M-32-02 Complete 219-S Tank Interim Status Actions ~~April 30, 1999~~ [redacted]

M-32-02-T03 Complete Construction Upgrades to 219-S Facility (Project W-178). ~~April 30, 1999~~ [redacted]

The interim milestone description and deliverable do not change.

Continued on Page 2 of 2.

Impact of Change

Approval of this change request will result in a schedule revision for interim milestone M-32-02 and for target date M-32-02-T03.

Affected Documents

Hanford Federal Facility Agreement and Consent Order, Action Plan, Appendix D, as amended.

Approvals

DOE [signature] Date 1/28/99 X Approved ____ Disapproved

EPA ____ Date ____ ____ Approved ____ Disapproved

Ecology [signature] Date 2/11/99 X Approved ____ Disapproved

Description/Justification of Change (cont'd)

Phase II of the 219-S compliance upgrades could not start until the liquid waste inventory in Tanks 101 and 102 was removed. This was scheduled to occur in January 1998. However, resolution of polychlorinated biphenyl (PCB) related issues and preparing for Mega Rule requirements in the January 1998 through August 1998 time frame delayed the waste removal until August 1998. The June 30, 1999 date reflects the revised project completion date.

Completion of this interim milestone will include the removal of Tank 103 from service. The Tank 103 waste inventory will be transferred to another tank. A small residual heel will remain (<1% of tank capacity). Tank 103 will be isolated and the heel allowed to evaporate to dryness. All service piping will be removed and a pressure relief valve installed. RCRA closure of Tank 103 will not take place until RCRA closure of the 219-S Waste Handling Facility

After completion of Project W-178, the 219-S Waste Handling Facility will contain a compliant dangerous waste tank system. The existing 219-S Sample System will not be upgraded. An evaluation of the system has been performed and the system found to be adequate for future use.

one year report 2014

3.0 SUMMARY OF CHARACTERIZATION INFORMATION

As part of generation of any waste, a generating unit must take steps necessary to confirm the proper management of this waste. This includes identifying proper radioactive classification, understanding the physical matrix, properly designating the waste, and, where applicable, identifying the appropriate underlying hazardous constituents. Types of information that can be used to characterize waste can include data from analysis of the waste and knowledge of the materials and/or processes used to generate the waste.

This section discusses and summarizes the waste treatability groups and the planned characterization activities for the waste. Waste must be sufficiently characterized so the waste can be stored and managed properly. In addition, waste must be sufficiently characterized before treatment to ensure that the proper treatment processes are applied and that the resultant treated waste meets LDR standards. Table 3-1 summarizes the planned characterization activities for each of the treatability groups. The planned characterization schedule column from Table 3-1 is reproduced in Table 1-2.

Table 3-1. Summary of Characterization Information for Each Treatability Group. (4 sheets)

Treatability Group Name	Additional Characterization Activities	Planned Characterization Schedule	Related TPA Milestone
221-T Containment Building	Completed	Completed	None
221-T Tank System	Additional characterization might be required to support waste treatment.	Will be done in conjunction with T Plant Complex Canyon disposition.	None
222-S Laboratory Complex	Characterization performed as generated.	Ongoing	None
222-S T8 Tunnel	As required to support cleanout of 222-S.	Will be done in conjunction with 222-S Laboratory building disposition.	None
241-CX Tank System	Additional characterization will be performed, as necessary, to support 200-IS-1 OU remedial decisions.	Characterization will be performed on waste in Tank 72 on a schedule determined with 200-IS-1	Major Milestone M-015-00
324 Building REC Waste	No further characterization planned for transfer to ERDF.	Completed	M-089-00
325 HWTU	Characterization performed as generated.	Ongoing	M-094-00

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Table 1-1. Stored Volumes of Mixed Waste and Generation Projections. (8 sheets)

Treatability Group Name	Description[1]	Current Inventory (m^3)	Generation Projection 2014 (m^3)	Generation Projection 2015 (m^3)	Generation Projection 2016 (m^3)	Generation Projection 2017 (m^3)	Generation Projection 2018 (m^3)
221-T Containment Building	Equipment (e.g., jumpers, tanks, centrifuges, etc.), other debris (e.g., pieces of concrete, etc.), and non-debris (e.g., sandblasting grit) generated during canyon deck and/or process cell cleanout, or from treatment and/or decontamination activities.	58.000	0	0	0	0	0
221-T Tank System	Liquid mixed waste with settled solids/sludge (waste also contains polychlorinated biphenyls (PCBs) at *Toxic Substances Control Act of 1976* (TSCA) regulated concentrations).	0	0	0	0	0	0
222-S Laboratory Complex	This waste stream consists of many different inorganic and organic solids and liquids that are RCRA regulated or have been contaminated with inorganic and organic regulated dangerous waste constituents, including PCBs. This waste stream also includes hazardous debris.	7.800	11.000	11.000	11.000	11.000	11.000
222-S T8 Tunnel	This waste stream is comprised of debris that has come into contact with waste from the 219-S Waste Handling Facility (WHF) tank system waste. The debris is designated as remote-handled mixed low-level waste (RH-MLLW) as a result of this contact.	0.200	0	0	0	0	0
241-CX Tank System[2]	Residual tank waste resulting from Reduction-Oxidation (REDOX) Plant, Plutonium-Uranium Extraction (PUREX) Plant, and Semiworks processes.	6.390	0	0	0	0	0
324 Building REC Waste	Radioactive waste containing regulated quantities of toxic heavy metals. Mixed waste residue may be generated from the future radiochemical engineering cells (REC) decontamination and deactivation activities and disposed as CERCLA waste.	5.000	0	0	0	0	0
325 HWTU	This waste stream consists of many different inorganic and organic solids and liquids that are contaminated with inorganic and organic regulated dangerous waste constituents, including PCBs. This waste stream also includes hazardous debris. Waste Specification Records (WSRds) in this waste stream include PNNL-930-05 and PNNL-931-04.	6.292	9.000	9.000	9.000	9.000	9.000
400 Area WMU	Mixed waste generated from Hanford activities, primarily from the deactivation of the Fast Flux Test Facility.	1.900	0	0	0	0	0

one year report 2014

5.0 STORAGE VOLUME AND CONTAINER NUMBERS FOR SELECTED STORAGE LOCATIONS

This section contains information on the volume in storage and the number of containers in storage for a number of Hanford Site locations as of December 31, 2013. These locations are identified in the TPA milestone description for M-026-01X. See Section 1.0 for the agreement made at the November 2008 LDR Project Manager Meeting to modify this table.

Table 5-1. Storage Volume and Number of Containers for Selected Hanford Locations. (3 sheets)

Hanford Site Location	Treatability Group	Waste Stream	Storage Volume (m^3)[1]	Number of Containers
ETF	LERF/ETF Solid Waste	Powder Drums	.832	4
LERF/ ETF[2]	LERF/ETF Solid Waste	Operations and Maintenance Waste	38.600	17
LERF/ ETF	LERF/ETF Liquid Waste[3]	ZP1-Groundwater	0	N/A
222-S	222-S Laboratory Complex	Containerized mixed waste	7.800	193
	222-S T8 Tunnel	T8 Tunnel RH-MLLW	.200	N/A - Pile
	DST Waste/219-S	Bulk Aqueous Liquids	22.591	N/A - Tanks
324	324 Building REC Waste	Radiochemical Engineering Cells	5.000	6
325 HWTU	325 HWTU	325 HWTU	6.292	93
	MLLW-07 - RH and Large Container	MLLW-07 RH	.625	3
	TRUM-CH Small Container	TRUM-CH	1.607	32
	TRUM - RH	TRUM-RH	.216	3
CWC	MLLW-01 – LDR Compliant Waste	LDR compliant	.416	2
	MLLW-02 - Inorganic Non-Debris	Inorganic Non-Debris Solids and Labpacks	.208	1
	MLLW-03- Organic Non-Debris	Organic Non-Debris	.322	1
	MLLW-04 - Hazardous Debris	Hazardous Debris	17.480	72
	MLLW-05 – Rad. Lead Solids	Elemental Lead	0	0
	MLLW-06 - Mercury Wastes	Elemental Mercury	0	0
	MLLW-07 - RH and Large Cont.	MLLW-07	48.680	18
	MLLW-08 - Unique Waste	Unique Waste	0	0
	MLLW-09 – Radioactive Batteries	Pb & Cd Batteries	0	0
	MLLW-10 - Reactive Metals	Alkali Metals	0	0
	TRUM-CH Large Container	TRUM Boxes	6,725.000	458
	TRUM-CH Small Container	CH TRUM	1,855.000	5,470
	TRUM - RH	RH TRUM	290.000	297

5-year report 2010

LDR REPORT TREATABILITY GROUP DATA SHEET

1.0 WASTE STREAM IDENTIFICATION

1.1 **Treatability Group Name:** 222-S Laboratory Complex

1.2 **Description of waste (list WSRd numbers for this waste stream, as applicable)**

This waste stream consists of many different inorganic and organic solids and liquids that are RCRA regulated or have been contaminated with inorganic and organic regulated dangerous waste constituents, including PCBs. This waste stream also includes hazardous debris.

2.0 WASTE INVENTORY AND GENERATION

2.1 **Current total inventory for this waste stream (stored waste only, not accumulation areas). [Equals sum of location-specific data sheets for this treatability group.]**

Total volume (cubic meters): 0.962

2.2 **Estimated generation projection by calendar year: [equals annual sums of location-specific data sheets for this treatability group].**

Year	m^3	and/or	kg
2010	11.000		0.000
2011	11.000		0.000
2012	11.000		0.000
2013	11.000		0.000
2014	1.000		0.000
Total	45.000		0.000

3.0 WASTE STREAM CHARACTERIZATION

3.1 **Radiological Characteristics**

3.1.1 **Mixed waste type:** ☐ High-level ☐ Transuranic ☒ Low-level

3.1.2 **Handling (as package contents would need to be handled during treatment):**

☒ Contact-handled ☐ Remote-handled

3.1.3 **Comments on radiological characteristics (e.g., more specific information on content, treatment concerns caused by radiation, confidence level):**

Due to process improvements (Debris Treatment/Decon) in the hot cell, it is unlikely that Remote Handled waste will be generated.

3.2 **Physical Form**

3.2.1 **Physical form of the waste:**

☒ Solid ☒ Liquid ☒ Semi-solid ☒ Debris

☐ Other (Describe in comments.)

3.2.2 **Comments on physical form:**

5 year

LDR REPORT TREATABILITY GROUP DATA SHEET

EPA/ State Number	Waste Description	LDR Sub-Category*	Concentration (Typical or Range)**	Basis	LDR Treatment Concentration Standard or Technology Code
D030	2,4-Dinitrotoluene	N/A	***	***	140.0 mg/kg & meet 268.48
D033	Hexachlorobutadiene	N/A	***	***	5.6 mg/kg & meet 268.48
D035	Methyl Ethyl Ketone	N/A	***	***	36 mg/kg & meet 268.48
D038	Pyridine	N/A	***	***	16 mg/kg & meet 268.48
D039	Tetrachloroethane	N/A	***	***	6.0 mg/kg & meet 268.48
D040	Trichloroethylene	N/A	***	***	6.0 mg/kg & meet 268.48
D043	Vinyl Chloride	N/A	***	***	6.0 mg/kg & meet 268.48
F001	1,1,1-Trichloroethane	Spent Solvent	***	***	6.0 mg/kg
F002	Methylene Chloride	Spent Solvent	***	***	30 mg/kg
F003	Acetone & Hexone	Spent Solvent	***	***	160 mg/kg
F004	o-Cresol & p-Cresol	Spent Solvent	***	***	5.6 mg/kg
F005	Methyl Ethyl Ketone	Spent Solvent	***	***	36 mg/kg
F027	Unused Formulations containing Pentchlorophenol	N/A	***	***	Multipl,e
F039	Leachate (F001-F005)	N/A	***	***	Multiple
P106	Cyanide	Total	***	***	1.2
U133	Hydrazine	N/A	***	***	CHOXD; CHRED OR CMBST
WP01	Persistent, EHW	N/A	***	***	None (1)
WP02	Persistent, DW	N/A	***	***	N/A
WP03	Persistent, EHW	N/A	***	***	None (1)
WSC2	Solid Corrosive	N/A	***	***	Remove solid-acid characteristic
WT01	Toxic, EHW	N/A	***	***	N/A
WT02	Toxic, DW	N/A	***	***	N/A

* LDR Subcategory marked N/A if no existing subcategory adequately describes this waste, or if there are no defined subcategories for the waste number (40 CFR 268.40).

** If waste is not consistent in concentration, this may not apply. Described in Section 3.3.6.

*** The concentration varies and is based on process knowledge and/or analytical data.

(1) Mixed extremely hazardous wastes may be land disposed in Wahington State in DOE facilities in accordance with RCW 70.105.050(2).

LDR REPORT TREATABILITY GROUP DATA SHEET

4.2 **Planned treatment: Check the appropriate box indicating future plans for treating this waste stream to meet applicable regulations, including LDR treatment standards.**

- ☐ No treatment required (skip to Section 5.0)
- ☒ Treating or plan to treat on site
- ☒ Treating or plan to treat off site
- ☐ Treatment options still being assessed

4.3 **Planned treatment method, facility, extent of treatment capacity available:**

Waste requireing treatement will be treated using off-site commercial treatment facilities; facilities planned to be used are Perma Fix Northwest in Richland and PermaFix/DSSI in Oak Ridge, Tennessee. For wastes that cannot be treated by either of the above means to meet LDR standards, the waste will be shipped to Central Waste Complex under an exception to current requirements to only receive LDR-compliant waste from CHPRC.

4.4 **Treatment schedule information:**

The goal of the 222-S Laboratory Complex is to treat waste off-site at commercial treatment facilities generally within one year. Waste that cannot be treated off-site will be shipped to CWC and will be subject to the schedules for treatment set forth in proposed TPA milestone M-091-42 (for contact-handled waste).

4.5 **Applicable Tri-Party Agreement treatment milestone numbers (including permitting):**

Milestone Number	Due Date
N/A	N/A

4.6 **Proposed new Tri-Party Agreement treatment milestones:**

See Section 4.4.

4.7 **If treating or planning to treat on site, was or will waste minimization be addressed in developing and/or selecting the treatment method?**

☐ Yes ☒ No ☐ Unknown

If yes, describe: N/A

4.8 **List or describe treatability equivalency petitions, rulemaking petitions, and case-by-case exemptions needed for treatment or already in place.**

N/A

4.9 **Key Assumptions:**

None

5.0 WASTE STREAM DISPOSAL

After treatment, how will the waste stream be disposed of (include locations, milestone numbers, variances required, etc. as applicable):

Subject waste will ultimately be disposed of in mixed waste trenches located on the Hanford Site or at commercial facilities.

5 year

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

2.2 Storage inventory locations:

Building/Room Number	Number of Containers/Tanks
HS-00082 A&B	4
HS-00083 A&B	3
Room 4E	0
Room 2B	0
N/A	N/A

2.3 Current stored inventory for this stream.

Total volume (cubic meters): 0.962

Date of inventory values: 12/31/2009

Comments on waste inventory:

Mixed Waste is shipped to an off-site TSDF.

2.4 Is storage capacity at this location potentially an issue for this waste stream?

☐ Yes ☒ No

If yes, what is the total estimated storage capacity? N/A

When is this capacity expected to be reached? N/A

Bases and assumptions used:

2.5 Planned storage areas for this waste:

☒ Current Location ☒ CWC ☐ DST

☒ Other Area(s) (list): Offsite treatment facilities.

☐ None

2.6 Estimated generation projection by calendar year (includes waste in satellite and 90-day accumulation areas):

Year	m^3	and/or	kg
2010	10.000		0.000
2011	10.000		0.000
2012	10.000		0.000
2013	10.000		0.000
2014	0.000		0.000
Total	40.000		0.000

2.7 DOE Storage Compliance Assessment information:

☒ Assessment has been completed.

5 year

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

Milestone Number	Due Date
N/A	N/A

If yes or unknown, comment on characterization for disposal.

N/A

2.12 Other key assumptions related to storage, inventory, and generation information:

This waste will be managed under current operational procedures

3.0 WASTE MINIMIZATION

3.1 Has a waste minimization assessment been completed for this stream?

☐ Yes ☒ No

If yes, provide date assessment conducted: N/A

If yes, provide document number or other identification:

N/A

If no, provide date assessment will be completed, or if waste stream is no longer generated, then indicate N/A:

Unknown at this time.

3.2 Provide details of current and proposed methods for minimizing the generation of this stream (e.g., process changes to reduce or eliminate LDR waste, methods to reduce volume through segregation and avoidance of commingling, substitution of less-toxic materials):

Proper planning is used prior to waste generation through work planning, pre-job meetings and consistent review of routine operations to minimize waste generation where possible. The Laboratory constantly seeks innovative opportunities to reduce waste by being aware of current waste minimizing technology.

3.3 Waste minimization schedule

3.3.1 Reduction achieved during calendar year 2009 (volume or mass)

0.833 m3

3.3.2 Projected future waste volume reductions

Year	m^3	and/or	kg
2010	0.00		0.00
2011	0.00		0.00
2012	0.00		0.00
2013	0.00		0.00
2014	0.00		0.00
Total	0.00		0.00

3.3.3 Bases and assumptions used in above estimates:

5 year

LDR REPORT TREATABILITY GROUP DATA SHEET

1.0 WASTE STREAM IDENTIFICATION

1.1 **Treatability Group Name:** 222-S T8 Tunnel

1.2 **Description of waste (list WSRd numbers for this waste stream, as applicable)**

This waste stream is comprised of debris that has come into contact with waste from the 219-S Waste Handling Facility (WHF) tank system waste. The debris is designated as remote-handled mixed low-level waste (RH MLLW) as a result of this contact.

2.0 WASTE INVENTORY AND GENERATION

2.1 **Current total inventory for this waste stream (stored waste only, not accumulation areas). [Equals sum of location-specific data sheets for this treatability group.]**

Total volume (cubic meters): 0.200

2.2 **Estimated generation projection by calendar year: [equals annual sums of location-specfic data sheets for this treatability group].**

Year	m^3	and/or	kg
2010	0.000		0.000
2011	0.000		0.000
2012	0.000		0.000
2013	0.000		0.000
2014	0.000		0.000
Total	0.000		0.000

3.0 WASTE STREAM CHARACTERIZATION

3.1 **Radiological Characteristics**

3.1.1 **Mixed waste type:** ☐ High-level ☐ Transuranic ☒ Low-level

3.1.2 **Handling (as package contents would need to be handled during treatment):**

☐ Contact-handled ☒ Remote-handled

3.1.3 **Comments on radiological characteristics (e.g., more specific information on content, treatment concerns caused by radiation, confidence level):**

RH waste must be shielded down to contact-handled (CH) levels before accepted into a Hanford Site TSD unit; therefore, RH waste packages in a Hanford Site TSD unit are actually input into SWITS as CH. To determine if a waste package contains RH waste, the radionuclide, dose rate, physical form, and generator information in SWITS are reviewed for clues that might lead a reviewer to believe a waste may be RH. Since the T-8 Tunnel waste may be high dose, RH will apply to this waste stream.

Sylan

LDR REPORT TREATABILITY GROUP DATA SHEET

3.3.4 Does this waste stream contain PCBs?

☐ Yes ☒ No ☐ Unknown

If no or unknown, skip to Section 3.3.5.

3.3.4.1 Is waste stream subject to TSCA regulations for PCBs?

☐ Yes ☒ No ☐ Unknown

3.3.4.2 Indicate the PCB concentration range.

☐ < 50 ppm ☐ ≥ 50 ppm ☐ Unknown

3.3.5 What is the confidence level for the regulated constituents?

☐ Low ☐ Medium ☒ High

3.3.6 Comments on regulated constituents and wastewater/non-wastewater category:

Characterization of the waste is based on characterization of the 219-S waste. Only F and D waste codes originally applied to the piping before it was taken out of service. The piping was rinsed prior to placement in the tunnel. Therefore, the piping no longer carries D waste codes, and only F waste codes apply. Underlying hazardous constituents do not apply.

4.0 WASTE STREAM TREATMENT

4.1 Is this waste stream currently being treated?

☐ Yes ☒ No

If yes, provide details: N/A

4.2 Planned treatment: Check the appropriate box indicating future plans for treating this waste stream to meet applicable regulations, including LDR treatment standards.

☐ No treatment required (skip to Section 5.0)

☐ Treating or plan to treat on site

☐ Treating or plan to treat off site

☒ Treatment options still being assessed

4.3 Planned treatment method, facility, extent of treatment capacity available:

TBD.

4.4 Treatment schedule information:

Treatment will be scheduled to coincide with the 222-S Laboratory Complex closure.

4.5 Applicable Tri-Party Agreement treatment milestone numbers (including permitting):

Milestone Number	Due Date
N/A	N/A

5 year

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

1.0 WASTE STREAM IDENTIFICATION AND SOURCE

1.1 Unit/Plant name: 222-S Laboratory Complex **Waste Stream:** T-8 Tunnel RH-MLLW

Treatabilitiy Group Name: 222-S T8 Tunnel

1.2 Applicable profile number(s) for this waste stream:

None.

1.3 Waste stream source information

1.3.1 General description of the waste (e.g., spill clean-up waste, discarded lab materials, maintenance waste):

Waste was generated from removal of pipelines and other debris used in the transfer of aqueous analytical waste from the 222-S Laboratory Complex to the 219-S WHF.

1.3.2 History of how and where the waste was/is generated:

The waste consists of debris (used pipes that transferred chemicals, unused samples, standards and reagents during analytical procedures).

1.3.3 Source of the regulated constituents:

The source of the hazardous constituents is 222-S Laboratory waste entering 219-S WHF.

1.3.4 Source of the information (e.g., analytical data, process knowledge, document number, etc.)

Approval of waste entering 219-S WHF is in accordance 222-S Waste Analysis Plan (WAP), RPP-29498 which superseded DOE/RL-91-27.

1.3.5 Additional notes:

None.

2.0 WASTE STREAM STORAGE, INVENTORY, AND GENERATION INFORMATION

(NOTE: For waste in satellite accumulation areas and 90-day accumulation areas, skip to Section 2.6.)

2.1 Current storage method

☐ Container (pad) ☐ Container (covered) ☐ Container (retrievably buried)

☐ Tank ☐ DST ☐ SST

☒ Other (explain): This debris waste stream is currently in shielded alcove of the T8 tunnel.

2.1.1 How was the waste managed prior to storage?

This waste was being staged in the shielded T-8 tunnel alcove per Ecology approval ("Request for Approval to Stage Out of Service Ancillary Drain Piping in the 222-S Laboratory Service Tunnels", dated October 10, 1997) until closure of the 222-S Laboratory Complex.

2.1.2 Timeframe when waste was placed to storage?

10/1997.

5 year

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

☐ Assessment has been scheduled. Scheduled date:

☒ Other. Explain: A&E-SEC-01-018 is attached to DOE letter numbered 02-A&E-002.

2.8 Applicable Tri-Party Agreement milestones related to storage at this location:

Milestone Number	Due Date
N/A	

2.9 Has there ever been any non-permitted, unauthorized release of this waste stream from this storage unit to the environment?

☐ Yes ☒ No

If yes, summarize releases and quantities and provide date:

N/A

2.10 Are there any plans to submit requests for variances or other exemptions related to storage?

☐ Yes ☒ No

If yes, explain: N/A

2.11 Characterization

2.11.1 Is further characterization needed about the waste prior to acceptance for storage?

☐ Yes ☒ No ☐ Unknown at this time

Milestone Number	Due Date
N/A	N/A

If yes or unknown, comment on characterization for storage.

N/A

2.11.2 Is further characterization needed about the waste prior to acceptance for treatment?

☐ Yes ☒ No ☐ Unknown at this time

Milestone Number	Due Date
N/A	N/A

If yes or unknown, comment on characterization for treatment.

N/A

2.11.3 Is further characterization needed about the waste prior to acceptance for disposal?

☐ Yes ☒ No ☐ Unknown at this time

Milestone Number	Due Date
N/A	N/A

5 year

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

1.0 WASTE STREAM IDENTIFICATION AND SOURCE

1.1 **Unit/Plant name:** 222-S Laboratory Complex/219-S Waste Handling Facility **Waste Stream:** Bulk Aqueous Liquids

Treatabilitiy Group Name: DST Waste

1.2 **Applicable profile number(s) for this waste stream:**

None.

1.3 **Waste stream source information**

1.3.1 **General description of the waste (e.g., spill clean-up waste, discarded lab materials, maintenance waste):**

Aqueous liquid waste is generated from analytical procedure operations, unused or expired standards and reagents, unused samples from Tank Farms and other customer locations, maintenance and operations activities at the 222S Laboratory.

1.3.2 **History of how and where the waste was/is generated:**

This waste stream is generated from analytical procedure operations, unused samples, unused or expired standards and reagents, analytical testing, and the maintenance and operation of the 222S Laboratory. The facility will generate this waste throughout the 222-S Laboratory Complex (analytical procedures, hot cell, 219-S Waste Handling Facility operations).

1.3.3 **Source of the regulated constituents:**

Unused samples from Hanford Site generating locations (e.g. LLBG, PFP, Tank Farms, K-Basins, ETF, etc.). Analytical procedures standards and reagents.

1.3.4 **Source of the information (e.g., analytical data, process knowledge, document number, etc.)**

Waste Stream Fact Sheets (WSFS), Container Disposal Request (CDR), Inventory sheets, MSDSs, and Request for Sample Analysis, Generator Knowlege of Samples.

1.3.5 **Additional notes:**

219S WHF only accepts radioactively contaminated aqueous waste.

2.0 WASTE STREAM STORAGE, INVENTORY, AND GENERATION INFORMATION

(NOTE: For waste in satellite accumulation areas and 90-day accumulation areas, skip to Section 2.6.)

2.1 **Current storage method**

- ☐ Container (pad)
- ☐ Container (covered)
- ☐ Container (retrievably buried)
- ☒ Tank
- ☐ DST
- ☐ SST
- ☐ Other (explain):

2.1.1 **How was the waste managed prior to storage?**

5 yrs

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

2.7 DOE Storage Compliance Assessment information:

☒ Assessment has been completed.

Document Number	Date
A&E-SEC-01-018	12/03/2001

☐ Assessment has been scheduled. Scheduled date:

☒ Other. Explain: A&E-SEC-01-018 is attached to DOE letter numbered 02-A&E-002.

2.8 Applicable Tri-Party Agreement milestones related to storage at this location:

Milestone Number	Due Date
N/A	

2.9 Has there ever been any non-permitted, unauthorized release of this waste stream from this storage unit to the environment?

☐ Yes ☒ No

If yes, summarize releases and quantities and provide date:

N/A

2.10 Are there any plans to submit requests for variances or other exemptions related to storage?

☐ Yes ☒ No

If yes, explain: N/A

2.11 Characterization

2.11.1 Is further characterization needed about the waste prior to acceptance for storage?

☐ Yes ☒ No ☐ Unknown at this time

Milestone Number	Due Date
N/A	N/A

If yes or unknown, comment on characterization for storage.

Characterization is performed as necessary to facilitate batch transfer of the waste to the DST System. A commitment is not necessary for this characterization.

2.11.2 Is further characterization needed about the waste prior to acceptance for treatment?

☒ Yes ☐ No ☐ Unknown at this time

Milestone Number	Due Date
N/A	N/A

If yes or unknown, comment on characterization for treatment.

See DST Waste LSDS.

5 year

LDR REPORT WASTE LOCATION-SPECIFIC DATA SHEET

3.3.2 Projected future waste volume reductions

Year	m^3	and/or	kg
2010	0.00		0.00
2011	0.00		0.00
2012	0.00		0.00
2013	0.00		0.00
2014	0.00		0.00
Total	0.00		0.00

3.3.3 Bases and assumptions used in above estimates:

The analytical processes generating this stream is continuously evaluated for waste minimization opportunities.

CONTENTS

APPENDIXES

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11.0 CLOSURE AND FINANCIAL ASSURANCE [I]

This chapter describes the planned activities and performance standards for closing the waste management units in the 222-S Laboratory Complex. Closure will begin when the 222-S Laboratory Complex TSD components are no longer managing hazardous or mixed waste (Section 11.5).

11.1 CLOSURE PLAN/FINANCIAL ASSURANCE FOR CLOSURE [I-1]

Achievement of the closure performance standards (Section 11.2) specified in this closure plan will allow clean closure of the 222-S TSD components (219-S Waste Handling Facility, 222-S DMWSA, and Rooms 2-B and 4-E container storage areas) with respect to dangerous and/or mixed waste contamination that resulted from operations. All solid waste management units (SWMU) and known releases (unplanned releases) associated with the 222-S Laboratory Complex are listed in Appendix 11A. There are two categories of SMWUs: those found in Appendix C of the Hanford Federal Facility Agreement and Consent Order (HFFACO) (aka TPA) which will be remediated under §120 of the Comprehensive Environmental Compensation and Liability Act (CERCLA); and those sites found in Appendix B of the HFFACO that are part of the 222-S TSD unit and will be closed under this closure plan. Unplanned release sites are found in HFFACO Appendix C and therefore will be managed under CERCLA in accordance with Section 3.5 of the HFFACO.

In cases where clean closure performance standards may not be met for either the TSD components or SWMUs, alternative closure options may be pursued under Condition II.K of the Hanford Facility RCRA permit or alternative performance standards may be applied pursuant to WAC 173-303-610 (see Section 11.2). If opportunities come about to integrate CERCLA and RCRA cleanup requirements, a request to Ecology will be made through modification of this closure plan.

Any modification of this closure plan will be performed in accordance with WAC 173-303-830. Remedial actions with respect to contamination resulting from activities not associated with management of regulated waste in these waste management units are outside the scope of this closure plan.

As described in Condition II.H.3 of the Hanford Facility RCRA Permit (DW Portion), federal facilities are not required to comply with financial assurance requirements of WAC 173-303-620.

11.2 CLOSURE PERFORMANCE STANDARD [I-1a]

Clean closure, as provided in this chapter and in accordance with WAC 173-303-610(2) and Ecology Guidance for Clean Closure (Ecology 2005), requires that all TSD units be closed in a manner that

- Minimizes the need for further maintenance

- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated run-off, and dangerous waste decomposition products to the ground, surface water, ground water, and air

- Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

In addition to compliance with the performance standard, clean closure requires the removal or decontamination of all dangerous waste, waste residues, and equipment, bases, liners, soils/subsoils, and other material containing or contaminated with dangerous waste or waste residue. Clean closure requires that removal and decontamination be based on the following:

- For soils, ground water, surface water, and air, the numeric cleanup levels are calculated using unrestricted use exposure assumptions. For all structures, equipment, bases, liners, etc., clean closure standards will be set by the department on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610 (2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents.

- Cleanup levels for the TSD unit contaminants of concern (COC) standards will be established through WAC-173-303-610(2)(b)(i) and (ii). In the event that clean closure is not feasible, alternative requirements maybe applied pursuant to Condition II.K of the Hanford Facility RCRA Permit and WAC-173-303-610(1)(e)(ii) if applicable.

- Condition II.K allows for several closure options that do not rely on meeting clean closure performance standards. Examples include closing to existing background levels, performing a modified closure using *Model Toxic Control Act* method C values and performing a landfill closure (which is also allowed under WAC 173-303-665 for regulated units).

For a site to qualify to use alternative cleanup standards under WAC 173-303-610(1)(e), Ecology must agree with the following conditions:

The site must be

> . . . a dangerous waste unit is situated among other solid waste management units or areas of concern, a release has occurred, and both the dangerous waste unit and one or more of the solid waste management units or areas of concern are likely to have contributed to the release; and
>
> It is not necessary to apply the requirements of this section (or the unit-specific requirements referenced in subsection (2)(b) of this section) because the alternative requirements will protect human health and the environment.

11.2.1 Constituents of Concern

The COC for the 222-S Laboratory Complex TSD components and SWMUs are currently based on information provided in the Part A form (Chapter 1.0). These waste numbers provided in the Part A form in combination with any spill history will be used to determine a comprehensive list of COCs at the time of closure.

11.2.2 Closure Standards

In accordance with WAC 173-303-640(8), clean closure of the 219-S Tank System would require that all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment be removed or decontaminated, and managed as dangerous waste unless WAC 173-303-070 (2)(a) applies. It further states that the closure plan must meet applicable requirements in WAC 173-303-610.

In accordance with WAC 173-303-630(10) clean closure of a containment structure (i.e., Room 2-B, Room 4-E, and the DMWSA), requires that all dangerous waste and dangerous waste residues be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with dangerous waste or dangerous waste residues must be decontaminated or removed.

WAC-173-303-610 stipulates that for all structures, equipment, bases, liners, etc., clean closure standards will be set by the department on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610 (2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents. Section 11.2.2.1 proposes that a "clean debris surface" standard be used to achieve clean closure for all metal surfaces.

11.2.2.1 Closure Standard for Metal Surfaces

Closure activities will use a 'clean debris surface' as the clean closure performance standard for metal surfaces. Metal surfaces encountered during closure will include, but not be limited to, tanks, piping, ancillary equipment, tank system secondary containment liners, laboratory hoods (e.g., hood 16 in Room 2-B), and 222-S DMWSA structures. Tanks 101, 102, and 104, and the 222-S DMWSA are not expected to be generated as debris. Tank 103 has been pumped, rinsed, and isolated, and will not be decontaminated further. Tank 103 will be generated as hazardous debris and managed at an appropriate TSD unit. Piping and laboratory hoods are expected to be generated as debris. Tank system secondary containment liners could be generated as debris depending on circumstances at the time of closure. This approach is consistent with Ecology guidance (Ecology 2005) for achievement of clean closure.

For metal surfaces, attainment of a clean debris surface will be verified visually in accordance with the alternative treatment standards for hazardous debris (40 CFR 268.45):

> Clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.

Metal surfaces, except piping, requiring decontamination based on visual examination will be decontaminated using an appropriate physical or chemical extraction technology from the alternative treatment standards for hazardous debris (40 CFR 268.45). Chemical extraction methods are not subject to residence time requirements. Piping will be rinsed to achieve a clean debris surface. Before using a decontamination solution on any liner surface or surface having potential contact with underlying soil, the liner or surface must be inspected for cracks or other openings that could provide a pathway to the soil. Any such cracks will be sealed before beginning treatment, or other engineered containment devices (e.g., portable catch basins, liners) will be used to collect and contain solutions. Areas of

obvious staining, discoloration, cracking, or potential contamination with COC will be reevaluated for more rigorous decontamination or removal, designation, and disposal.

Debris, as well as any generated rinsate, will be removed, designated, and disposed of at an appropriate location. Removed nondebris matrices not meeting performance standards will be managed as hazardous or mixed waste (depending on presence of radioactive contaminants) unless information exists otherwise.

Piping stored in the T-8 tunnel will be removed at closure. If technology allows internal inspection of the piping, the piping could be evaluated for a clean debris surface. If technology does not allow inspection of internal surfaces or personnel exposure issues exist, the piping will be managed as mixed hazardous debris and moved to an appropriate TSD unit.

11.2.2.2 Closure Standard for Concrete

The performance standard for concrete will be a clean debris surface based on visual verification. When the performance standard is not met, decontamination of concrete will be accomplished using a physical or chemical extraction technology from the alternative treatment standards for hazardous debris (40 CFR 268.45). Chemical extraction methods are not subject to residence time requirements. Physical extraction methods are not subject to the 0.6-centimeter removal requirement. When a water-based decontamination method is used, the rinsate will be tested for the COC (Section 11.2.1). The performance standard will provide verification that the levels of the COC in the rinsate are below health-based risk levels as identified in WAC 173-303-610(2)(b). The concrete will be examined visually after decontamination. Areas of obvious staining, discoloration, cracking, or potential contamination with COC will be reevaluated for more rigorous decontamination or removal, designation, and disposal.

11.2.2.3 Closure Standards for Asphalt

A layer of asphalt (Chapter 4.0, Section 4.2.4.1.1) lies underneath the 6-inch concrete base for the DMWSA and underlays the load/unloading areas. Asphalt is considered a form of porous debris and is subject to the same treatment standards as concrete (Ecology 2005); however, if asphalt does meet the clean debris surface, decontamination is not common because of its porosity and therefore will be removed and managed as hazardous debris unless a contained-in determination is granted by Ecology. If a contained-in determination is granted, then the asphalt would be considered as nonhazardous debris and could be disposed of in a RCRA Subtitle D landfill. Any soils underneath will be characterized to determine whether removal will be necessary (Section 11.2.5).

11.2.2.4 Closure Standards for Underlying Soil

If there are no cracks in concrete overlaying soil, the soil will be considered clean closed. If concrete surfaces are cracked, the concrete will be cored at the crack in the concrete to obtain a soil sample. Clean closure of soil under concrete and concrete plus asphalt (the 219-S Waste Handling Facility and the 222-S DMWSA, respectively) will require sampling of the soil for COCs. If the soil testing results determine that the COCs are at or below cleanup levels, the soil will be considered clean closed and will not require remediation. Cleanup levels for soil are defined by the Hanford Facility RCRA Permit (DW Portion), Condition II.K.1, and WAC 173-303-610(2)(b).

Clean closure of the soil underlying Rooms 2-B and 4-E will be accomplished by demonstrating that there are no pathways for dangerous waste to the underlying soil. Operating records will be checked to verify that cleanup of any spills within Room 2-B and/or Room 4-E was performed. Room 2-B is located partially above a tunnel, which is in the basement of the 222-S Laboratory. The floors of Room 2-B and Room 4-E will be checked for cracks. Any cracks that are found will be investigated.

If clean closure can not be obtained for soils underlying TSD SWMUs listed in HFFACO Appendix B (i.e., 222-S TSD components) other closure options will be considered (section 11.2) including integration with planned CERCLA activities. RCRA/CERCLA integration would require an Ecology approved modification to the existing closure plan.

Soils underlying SWMUs, listed in Appendix C of the HFFACO will be cleaned up under a CERCLA action.

11.3 CLOSURE ACTIVITIES [I-1b]

In accordance with WAC 173-303-610 and Ecology Guidance for Clean Closure (Ecology 2005), the following activities to achieve clean closure are required:

- Remove and properly manage all wastes and waste residues from the 222-S TSD Components and SMWUs

- Remove and properly manage 222-S TSD components, structures, and all associated piping, equipment, containment areas, and any other materials used in construction or operation of the unit, or decontaminate these materials

- Remove and properly mange any environmental media (soil, ground water, surface water, and sediments) affected by releases from the 222-S TSD components and SWMUs or decontaminate such environmental media.

Clean closure will be accomplished by proper implementation of this closure plan. If it is determined that clean closure is not possible, the closure plan will be modified to address required post-closure activities in WAC 173-303-610. RCRA/CERCLA integration may also be considered as an alternative closure option .

Access to the 219-S Waste Handling Facility, the 222-S DMWSA, and Room 2-B and Room 4-E storage areas will be controlled during the closure period. Access will be limited to personnel required to support the closure of the units. All activities will be performed to minimize personnel exposure in accordance with ALARA principles.

11.3.1 Maximum Extent of Operation [I-1b(1)]

The maximum extent of operation for the waste management units is provided in Chapter 1.0.

A portion of the ancillary piping located in the 222-S Laboratory tunnels was removed from service in 1997. The removal and staging of the high-dose drain piping in a shielded staging area in the T8 tunnel

within the 222-S Laboratory was agreed to by Ecology (99-EAP-446). During unit closure, this piping will be designated and managed in an appropriate waste management unit or TSD unit.

A closure was completed on two storage structures previously located at the 222-S DMWSA (Appendix 11B). The structures were clean closed, removed from the area, and replaced with two new storage structures in 1998 (Chapter 2.0). The concrete below the removed structures was not closed. Closure of underlying soil and the concrete was deferred to the closure of the 222-S DMWSA.

Appendix 11B contains the following information for the previously closed and removed storage structures:

- Partial closure plan
- Ecology approval letter
- Professional engineer certification for the partial closure.

With Ecology concurrence, tank 103 in the 219-S Waste Handling Facility was isolated in 1999 (Ecology Change Control Form M-32-98-01). Tank 103 is included in this closure plan.

11.3.2 Operations Records Search

Operating records will be reviewed and cognizant operations personnel interviewed to obtain an inventory and spill history for the units undergoing closure. A spill history is necessary to help determine the need for and extent of decontamination necessary for clean closure. The records review will entail a review of all available records related to operations in the treatment and/or storage units. The records review will include operations logbooks, RCRA weekly inspection records, a search for 'offnormal' event reports, and the waste identification data system. Former cognizant operation personnel could be interviewed.

11.3.3 Closure Activities for the 219-S Waste Handling Facility [I-1b(3)]

This closure plan describes the methods of decontamination and equipment removal in accordance with WAC 173-303-610(5). Any waste generated during decontamination and equipment removal will be managed pursuant to WAC 173-303-170 through 173-303-230.

Decontamination and equipment removal will occur for the following portions of the 219-S Waste Handling Facility:

- 219-S Waste Handling Facility structure
- Truck load in/out areas
- Process tanks, piping, and ancillary equipment
- Below-grade concrete vault structure
- External piping and ancillary equipment
- Underlying soil.

Equipment, piping, and materials that can not be decontaminated will be removed and transported to an appropriate TSD unit for final disposition.

Clean closure of underlying soil will be based on testing results. If the soil is contaminated above regulatory limits specified in the Hanford Facility RCRA Permit (DW Portion), Condition II.K.1, the contaminated areas will be defined and the soil will be removed. Removed soil will be designated and disposed of in an appropriate location.

11.3.3.1 Removing Dangerous Waste [I-1b(2)]

The mixed waste inventory contained within the 219-S Waste Handling Facility (i.e., tanks 101, 102, and 104) will be removed using the existing process equipment and pumps. Decontamination of the tanks including removal of tank heel and residues will occur pursuant to 40 CFR 268.45 and WAC 173-303-610(5). The mixed waste contained in the tanks will be transferred to an appropriate TSD unit for disposition.

11.3.3.2 219-S Waste Handling Facility Structure

The operating gallery in the 219-S Waste Handling Facility never was used for the processing of mixed waste or the storage of dangerous materials. The 219-S Waste Handling Facility contains equipment and structures (e.g., the walls and ceiling of the operating gallery, the control panel, and the rinsed caustic tank) that are not expected to have become contaminated because of functional and physical separation from the waste treatment and storage areas. The uncontaminated equipment and structures will be left in place for future use or dismantled and/or removed as required.

11.3.3.3 Truck Load in/out Platforms

All the container storage areas have load-in and load-out platforms (Chapter 4.0). Once the load-in and load-out platforms are no longer needed, all containerized waste will be transferred from the platforms to either an onsite or offsite TSD unit. The spill history for the platforms will be reviewed, and platform surfaces will be visually inspected for staining. Any evidence of contamination will be addressed by appropriate decontamination and sampling procedures as specified by this closure plan. Clean closure will be achieved by meeting the performance standards (Sections 11.2.2, 11.2.2.1, 11.2.2.2, 11.2.2.3, and 11.2.2.4) for metal, concrete, and asphalt surfaces as appropriate. In the event that clean closure is unachievable, the platforms will be removed and handled as hazardous debris (40 CFR 268.45).

11.3.3.4 Process Tanks, Internal Piping, and Ancillary Equipment

After the waste inventory is transferred from the 219-S Waste Handling Facility, the tanks and piping will meet the performance standard from Section 11.2.2 to be considered clean closed. Process equipment contained in the sample gallery, pipe gallery, and vault of the 219-S Waste Handling Facility is assumed to be contaminated or potentially contaminated. Equipment in these areas either has been in contact with the waste or has been in close proximity to the waste. All major equipment used in these areas is listed in Chapter 4.0 and will be removed from the 219-S Waste Handling Facility for disposal.

The process piping in the 219-S Waste Handling Facility will be removed in two stages. During the first stage, the process pipe jumpers will be removed; during the second stage, the hard piping will be removed. Some of the hard piping may be left in place after this process and removed with the associated tanks. The piping removed will be designated and packaged for transport to an appropriate TSD unit for further decontamination, as necessary, and disposal. Piping embedded within the concrete walls of the structure will be left in place until removal of the concrete and then examined, as possible, for a clean debris surface.

The process tanks in the 219-S Waste Handling Facility will be removed in two stages. The smaller pieces of equipment will be removed first, and the tanks will be removed second. The removal of each piece of equipment will be conducted under specific procedures prepared before closure.

11.3.3.5 External Piping and Ancillary Equipment

The pipes between the 219-S Waste Handling Facility and the 222-S Laboratory are included in this closure plan. In addition, abandoned piping encased in concrete between the 219-S Waste Handling Facility and the 222-S Laboratory used for TSD activities will be handled according to this closure plan. Abandoned transfer piping leading from the 219-S Waste Handling Facility tanks to the unit boundary (Section 4.1.2) will be closed in accordance with this closure plan. This piping will be excavated, designated, and disposed of at an appropriate TSD facility. Piping beyond the unit boundary (i.e., piping between the exterior wall of the 219-S Waste handling Facility and the 241-SY tank farm) is outside the scope of this closure plan. This piping is identified as part of the DST System boundary and will be addressed with the DST System closure. Pipeline corridor sampling of soil around external piping is discussed in Section 11.3.3.8.13.

11.3.3.6 Below-grade Concrete Vault Structure

The liners were installed from 1996 through 1998. The liners provide secondary containment for the tanks, process piping, and ancillary equipment in the concrete vault. The liners will be decontaminated, as necessary, before removal to meet the performance standards for metal in Section 11.2.2.1. All accessible concrete will be inspected visually before any decontamination. The purpose of the inspection will be to identify and map any cracks in the concrete that might have allowed contaminants a pathway to the soil below and to identify areas that potentially are contaminated with mixed waste or mixed waste residues.

Those potentially contaminated areas will undergo decontamination to meet the clean closure standard described in Section 11.2.2. Decontamination residues will be collected, designated, and managed as appropriate. Achievement of a clean debris surface for metal surfaces and clean surfaces for concrete surfaces will be documented on an inspection record.

11.3.3.7 Underlying Soil

The purpose of the soil sampling effort will be to verify that no contamination of the soil occurred or to determine the extent of contamination as a result of the operation of the 219-S Waste Handling Facility.

A sampling and analysis plan will be prepared in accordance with Section 11.3.3.8, before performing any soil sampling activities. A data evaluation report will be prepared after completion of the soil sampling activities and receipt of validated analytical results. This data evaluation report will compare the analytical results of the soil samples with the regulatory cleanup levels defined by the Hanford Facility RCRA Permit (DW Portion), Condition II.K [regulatory cleanup levels are based on WAC 173-303-610(2)(b). This comparison will serve as the basis for a decision on whether or not clean closure could be achieved.

If sample results from a specific area do not meet the clean closure criteria, the COC that exceed the regulatory cleanup levels will be identified. If further sampling is performed at this location, analysis will be limited to only these constituents. If the area of contamination is localized and accessible, the contaminated soil will be remediated or removed. Remediation or removal of soil will be followed by additional verification sampling to determine the effectiveness of the remediation or removal. The

number of samples collected will depend on the areal extent of contamination encountered. If soil testing results are greater than regulatory cleanup levels stated (Condition II.K), the concrete will be removed as debris and the soil will be remediated.

11.3.3.8 Sampling to Achieve Clean Closure

In accordance with WAC 173-303-610(3)(a)(v), a sampling and analysis plan (SAP) will be developed in accordance with WAC 173-303, the Hanford Facility RCRA permit (Condition II.E), Ecology 2005, and/or the most current regulation. This plan will be submitted to Ecology for review and approval prior to implementation of this closure plan

The closure SAP will be designed to determine the probable maximum horizontal and vertical extent of contamination at and from the 222-S TSD unit. At the end of the closure process, additional sampling may be required to confirm that clean closure levels have been achieved.

The 222-S Closure SAP will include the following sections:

- A statement of the purpose and objectives of the data collection
- Organization and responsibilities for the sampling and analysis activities
- Project schedule
- General information on selection of types of samples needed (such as grab or composite), and amount of samples to be analyzed
- General information on selection of sampling locations and method used to determine where the sampling will occur
- Specific sampling approach and methods
- Sampling and analysis procedures to confirm decontamination of tanks and concrete containment systems and other media or equipment (if required)
- Procedures for analysis of samples and reporting of results.

Sections 11.3.3.8.1 through 11.3.3.8.4 describe the general approach to sampling to determine if the clean closure standard has been achieved. These approaches will be specified within the 222-S closure SAP.

11.3.3.8.1 Sampling Soil Under Concrete and Asphalt

All concrete surface areas will be inspected visually to identify cracked areas and other areas of potential contamination. Cracked areas will be mapped, and sampling in these areas will be biased to include the soil beneath cracked areas. If the below-grade concrete vault structure is left in place, the concrete will be cored and samples of the underlying soil will be collected for testing of COC. In addition to soil under cracked areas, any potential migration pathway through the concrete and liner, such as seams and expansion joints, will be taken into consideration when determining the exact soil sample locations.

Asphalt will be removed and soil underneath will be sampled, designated, and managed accordingly.

11.3.3.8.2 Sampling Soil Around Structure

The soil surrounding the 219-S Waste Handling Facility is relatively porous as is most of the soil on the Hanford Facility. However, if contaminants are present, the contaminants are unlikely to move

substantially below the soil surface because average annual precipitation is low [approximately 15.9 centimeters per year (DOE/RL-91-28)]. No liquid discharge has occurred in the vicinity of the 219-S Waste Handling Facility. Thus, it is assumed that any contaminants released to the soil likely would not migrate down through the soil column but rather would be held in the upper soil profile. If indications of liquid discharges are identified, an SAP will be developed based on the data quality objectives process.

11.3.3.8.3 Sampling Soil Around the External Piping

In conjunction with piping removal, the excavated soil and pipe trench will be sampled and tested for contamination by COC. Soil sampling is expected to occur along the length of the pipe corridor trenches. Sampling might include both random and authoritative sampling. The deepest parts of the trenches, as well as concrete joints, are assumed to be the areas that would have the highest level of contamination. Therefore, soil in the bottom of the excavated pipe trench will be sampled during the soil sampling effort.

11.3.3.8.4 Quality Assurance

During closure activities, samples will be collected and analyzed in accordance with quality assurance and quality control guidelines contained in the HFFACO Action Plan (sections 6.5 and 9.6) and the Hanford Facility RCRA Permit to ensure representative and reliable results. The validity of both sampling and laboratory analytical methods will be ensured so the data from sampling activities can be used to accurately assess the presence or absence of contamination at the units.

Field duplicate, equipment blank, and trip blank samples will be analyzed as a check on field sampling methods, cross-contamination of samples, contamination from sample handling, and laboratory contamination. Analytical methods will be standard methods (e.g., SW-846) whenever possible and will include analysis of check standards, duplicate samples, spike samples, and method blanks. The results of the sampling and analysis program will be subjected to statistical analyses.

11.3.4 Closure Activities for the 222-S Dangerous and Mixed Waste Storage Area [I-1b(3)]

Closure of the 222-S DMWSA will require removal of all waste inventory, decontamination or removal of the storage structures, the concrete pad, and closure or removal of the underlying soil. In accordance with WAC 173-303-630(10), all dangerous waste and dangerous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with dangerous waste or dangerous waste residues will be decontaminated or removed.

11.3.4.1 Removing Dangerous Waste [I-1b(2)]

As a first step of closure, all containers of waste will be removed from the storage structures. The containers of waste will be transferred to an appropriate TSD unit.

11.3.4.2 Decontamination of the Structure

Clean closure of the 222-S DMWSA will require that the storage structures meet the clean closure performance standard in Section 11.2.2 and be removed to allow assessment of the concrete and underlying soil in accordance with Sections 11.2.2.2 and 11.2.2.4, respectively.

11.3.4.3 Concrete Pad

After removal of the storage structures, the concrete will be evaluated in accordance with Section 11.2.2.2. The purpose of the inspection will be to identify and map any cracks in the concrete that may have allowed contaminants a pathway to the soil and to identify areas that potentially are contaminated with dangerous waste or dangerous waste residues. The inspection will be documented on an inspection record. This process will be repeated at the previous 222-S DMWSA location.

11.3.4.4 Underlying Soil

If based on evaluation of the concrete pad, there is a possibility of contamination of the underlying soil, the soil will be sampled. The purpose of the soil sampling effort will be to verify that no contamination occurred as a result of operations. Soil sampling will occur after removal of the concrete pad.

An SAP will be prepared in accordance with SW-846 standards before performing any soil sampling activities. A data evaluation report will be prepared after completion of the soil sampling activities and receipt of validated analytical results in accordance with the 222-S closure SAP. This data evaluation report will compare the analytical results of the soil samples with the regulatory cleanup levels defined by the Hanford Facility RCRA Permit (DW Portion), Condition II.K. This comparison will serve as the basis for a decision on whether or not clean closure can be achieved.

If sample results from a specific area do not meet the clean closure criteria, the COC that exceed the regulatory cleanup levels will be identified. If further sampling is performed at this location, analysis will be limited to COC exceeding cleanup levels. If the contamination is localized and accessible, the contaminated soil will be remediated or removed. Remediation or removal of soil will be followed by additional verification sampling to determine the effectiveness of the remediation or removal.

11.3.5 Closure Activities for Room 2-B and Room 4-E Storage Areas [I-1b(3)]

Closure of Room 2-B and Room 4-E will be performed in accordance with WAC 173-303-630(10) and requires removal of all waste inventory, removal of equipment associated with waste management activities, and decontamination of the room. As a first step of closure, all containers of waste will be removed from the storage area. The containers of waste will be transferred to an appropriate TSD unit.

After removal of any waste and equipment associated with waste management activities, visual assessment of the room will be performed. Room surfaces will be evaluated in accordance with Sections 11.2.2.2 and 11.2.2.4.

Clean closure of the soil underlying Room 2-B or Room 4-E will be accomplished by demonstrating that there are no pathways for dangerous and/or mixed waste to the underlying soil. All liquid mixed waste stored in Room 2-B is stored in secondary containment, which prevents spills from reaching the floor. Room 2-B is located partly above a tunnel in the basement of the 222-S Laboratory Complex. Mixed waste stored in Room 4-E is stored in secondary containment when the waste contains free liquids, is ignitable, or is reactive. All concrete surface areas will be inspected visually to identify cracked areas and other areas of potential contamination. Cracked areas will be mapped, and sampling in these areas will be biased to include the soil beneath cracked areas. If the below-grade concrete vault structure is left in place, the concrete will be cored, and samples of the underlying soil will be collected for testing of COC. In addition to soil under cracked areas, any potential migration pathway through the concrete and liner, such as seams and expansion joints, will be taken into consideration when determining the exact

soil sample locations. The ceiling of the basement room will be checked for staining that may indicate a leak of dangerous and/or mixed waste occurred.

11.4 MAXIMUM WASTE INVENTORY [I-1c]

The maximum inventories for the treatment/and or storage units of the 222-S Laboratory Complex are based on information contained in Chapter 1.0.

11.5 SCHEDULE FOR CLOSURE [I-1f]

Closure of 222-S Laboratory Complex is not anticipated to occur within the next 15 to 20 years. Because use of the 222-S Laboratory is required for environmental restoration activities, a date for closure of the 219-S Waste Handling Facility, the 222-S DMWSA, and Rooms 2-B and 4-E storage areas depends on the schedule for these activities. Other factors affecting the year of closure include changes in operational requirements and unforeseen factors. When a definite closure date is established, a revised closure plan will be submitted to Ecology. The activities required to complete closure are planned to be accomplished within 180 days in accordance with WAC 173-303-640(4)(c). Should a modified schedule be necessary, a revised schedule will be presented and agreed to before closure in accordance with WAC 173-303-640(4)(b).

11.6 CERTIFICATION OF CLOSURE.

In accordance with WAC 173-303-610(6), within 60 days of completion of closure of the 222-S TSD unit (including tank systems and container storage areas), and within 60 days of the completion of final closure, the owner or operator will submit to Ecology by registered mail, a certification that the 222-S TSD unit has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to Ecology on request.

S

Integrity Assessment Report of Tanks TK-101 and TK-102

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INTEGRITY ASSESSMENT REPORT OF TANKS TK-101 AND TK-102

PROJECT W-178
219-S SECONDARY CONTAINMENT UPGRADE

Prepared for
Waste Management Hanford

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Fluor Daniel Northwest

June 1999

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1.0 INTRODUCTION AND BACKGROUND

1.1 Scope

This Integrity Assessment Report (IAR) is prepared by Fluor Daniel Northwest (FDNW) for Waste Management Federal Services of Hanford, Inc., (WMH), the operations contractor; Fluor Daniel Hanford (FDH), the Hanford Site Manager; and the U. S. Department of Energy (DOE), the system owner. This IAR addresses the evaluation of Tanks 101 and 102 and other existing components located in the 219-S Waste Handling Facility. This report will be included in the Part B Permit for the 222-S Laboratory and is a portion of the integrity assessment of the overall 222-S Laboratory radioactive liquid waste disposal system. This IAR is prepared in accordance with WAC 173-303, *Dangerous Waste Regulations*; Section 640(2), "Assessment of Existing Tank Systems Integrity."(Reference 1).

1.2 History

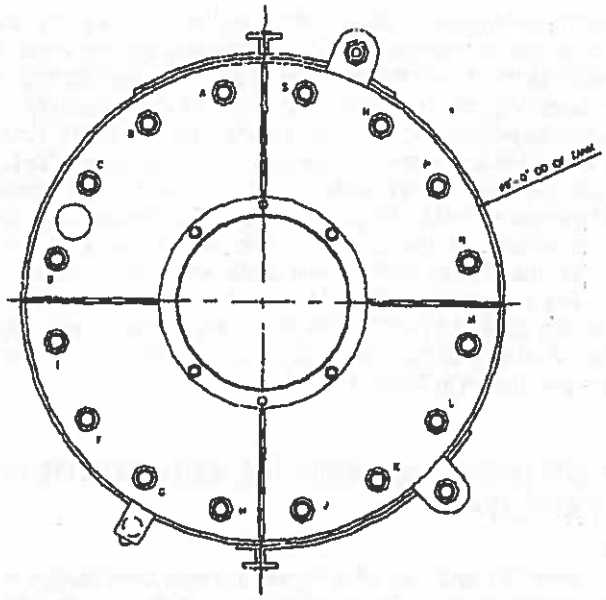
1.2.1 Original System Description

The 219-S Facility was built in the early 1950's and is part of the 222-S Laboratory radioactive liquid waste disposal system. The 219-S Facility originally consisted of three tanks (Tanks 101, 102, and 103) enclosed in an underground, epoxy-coated, concrete vault, interconnecting piping, an operating gallery, and sampling room. This vault was separated into two sections (Cell A and Cell B) with each section sloped to a sump equipped with a steam jet to remove waste and level instrument with an alarm. Tanks 101 and 103 collected waste from the laboratory through underground lines. When enough waste was collected, waste would be transferred to the third tank (Tank 102) via a steam jet system. In Tank 102, the pH and nitrite levels of the waste would be adjusted prior to transfer to the tank farms. Transfer to the tank farms was originally made through an underground line routed through REDOX. However, from 1989 to 1998, the waste transfers were made by a tanker trailer. The laboratory uses a large variety of chemicals. The most frequently used chemicals, which could corrode the stainless steel tanks, are hydrochloric acid, nitric acid, carbonate, hydroxide, fluoride, nitrite, sulfate, and phosphate.

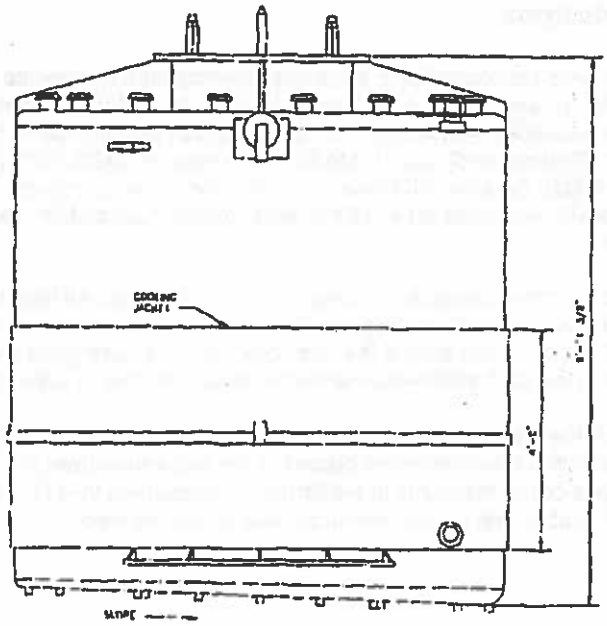
1.2.2 Tank Description

Tanks 101 and 102 are 4300 gallon (9 ft-0 in. diameter by 9 ft-8 in. tall) stainless steel tanks fabricated in 1943 for U Plant (see Reference 2). The U Plant work was canceled before the tanks were installed. The tanks were secured for the 219 S Facility and placed into service in 1951. Both tanks were built to ASME standards (non code stamped) from Type 347 stainless steel with a shell thickness of 0.5 inches. The tanks were fabricated from plate connected with full penetration welds. The welding was radiographed. Each tank is equipped with a cooling jacket that covers the lower half of the tank. The tanks are designed to be operated at atmospheric pressure. The high-level alarm on Tank 101 set at 3600 gallons and Tank 102 set at 3800 gallons. A sketch of the tanks is shown in Figure 1. When installed in 1951, Tank 102 (functioning as a chemical treatment tank) was equipped with an agitator. Tank 101 (functioning as a collection tank) was not equipped with an agitator.

Figure 1,
Sketch of Tanks 101 and 102



PLAN
TANK NO. 101 AND 102 ASSEMBLY



ELEVATION

1.3 Current System Description

Radioactive liquid waste generated in the 222-S Laboratory enters into the collection system in the laboratory (i.e. hot cells, hoods, sumps, etc). The collection system is connected to a transfer system, which moves the waste to the 219-S Facility. There are four main transfer lines connected to the 219-S Facility. Two lines originate in the 11A hot cells and were installed by project W-041H. The other two lines were installed by project W-087; one line originates in the T8 tunnel and one line originates in the T4 tunnel. The collection and transfer lines are encased (pipe in pipe) piping equipped with leak detection. Waste from the 11A hot cells is collected in Tank 101 and waste from T8 and T4 is collected in Tank 104. Tank 104 was added by Project W-178, *219-S Secondary Containment Upgrade*. Once enough waste has accumulated in the collection tanks, the waste is transferred to Tank 102 for treatment. In Tank 102, the pH and nitrite levels of the waste are adjusted to meet tank farms waste acceptance criteria. The waste is transferred to tank farms by an air-operated pump and an underground transfer line (project W-087). The tanks are operated at a slight negative and vented through a HEPA filter. A sketch of the system is shown in Figure 2. The waste characteristics and tank operating parameters are shown in Table 1.

2.0 INTEGRITY OF TANKS 101 AND 102 AND EXISTING COMPONENTS OF THE 219-S FACILITY

The assessment of Tanks 101 and 102 will address the analytical design of the tanks, the current condition of the tanks, compatibility of the tank material with the waste to be stored or treated, and provide recommendations for future assessments. In addition, the assessment will address the components of 219-S Facility that will continue to be used in the tank system.

2.1 Analytical Analysis

Tanks 101 and 102 were fabricated from the same drawing (see Reference 2). Therefore, one analysis is adequate for both. An analysis was performed in 1980 as part the assessment for the 219-S Facility (see Reference 4, WHC-SD-CP-ER-030). The analysis was perform using the following codes and standards: SDC 4.1 (Reference 5), UCRL 15910 (Reference 6), UBC 1988 (Reference 7), ANSI/API 650 (Reference 8), and ASME Section VIII (Reference 9). These standards are still applicable. In the analysis, the tanks were evaluated for shell stresses, overturning stability, anchorage requirements, and nozzle reinforcement.

The results of the shell stress analysis demonstrates that the required wall thickness at the bottom of the tank is 0.062 inches and at the top of the tank 0.188 inches. The tanks were fabricated with shell thickness of the 0.5 inches. This shows that the tanks are over designed for the intended use. The additional thickness in the tank shell would allow for reduction due to corrosion.

The analysis showed the need for additional seismic restraints. These restraints were installed as part of project W-178. Seismic restraints were placed at the top and bottom of the tanks as shown in Figure 3. The analysis of the restraints is presented in calculation W-178-C02 (Reference 10). The analysis also demonstrated that nozzle reinforcement is not required.

Figure 2,
Waste Transfer System

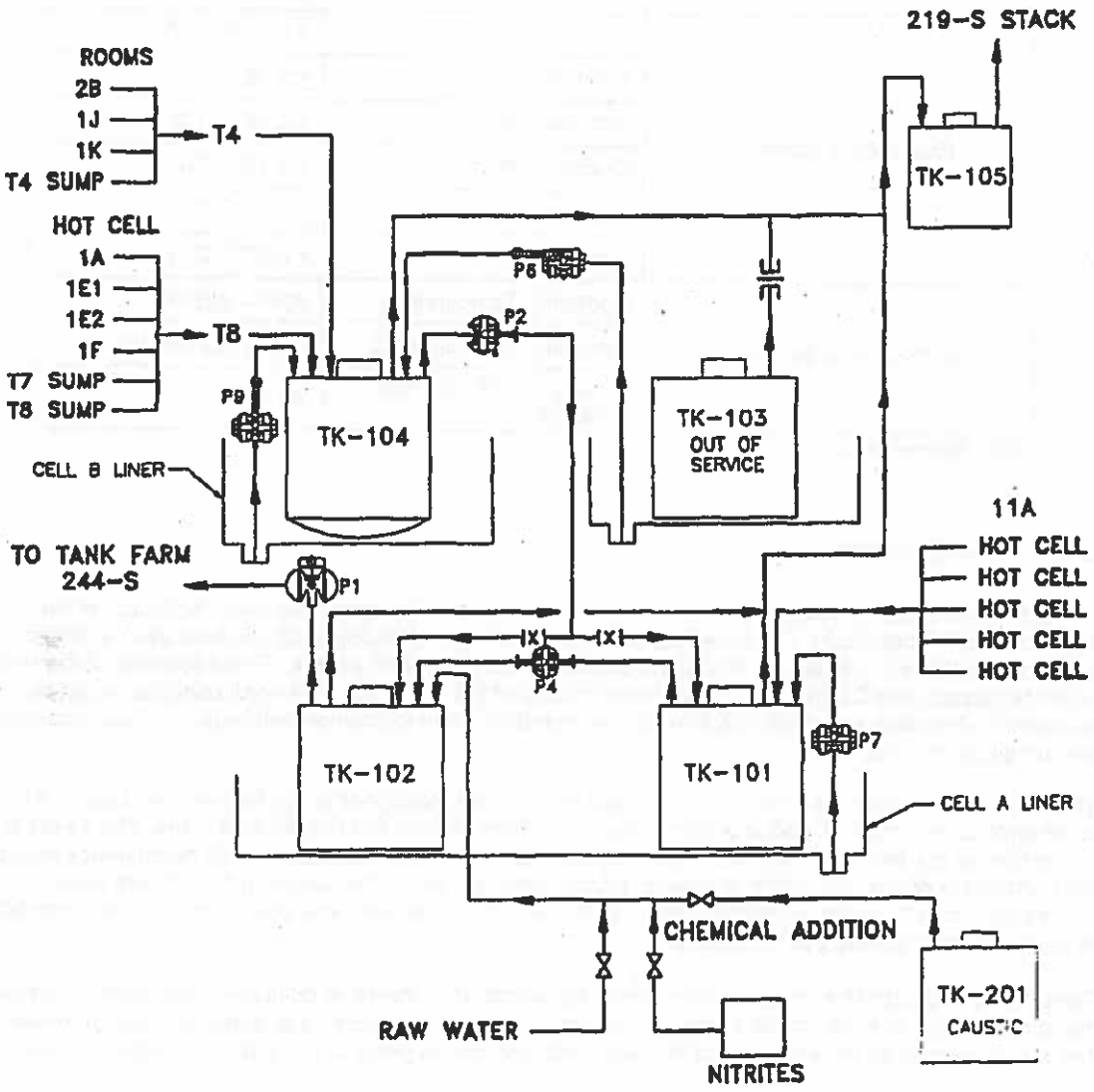


Table 1, Waste Characteristics and Tank Operation Parameters

Fluid Properties	Density	1.0 – 1.1 g/cc
	Viscosity	0.3 – 3.0 centipoise
	Solids Content	0.0 – 5.0 vol. %
	pH	0.5 – 14.0
Radioactive Materials	Total Alpha	$\leq 2.71E^{-3}$ Ci/l
	Total Beta	≤ 1.18 Ci/l
	Strontium-89/90	$\leq 2.88E^{-1}$ Ci/l
	Cesium-137	$\leq 4.1E^{-1}$ Ci/l
	Uranium	$\leq 3.0E^{-1}$ Ci/l
	Plutonium	$\leq 2.0E^{-3}$ Ci/l l
Tank Operation Parameters	Operating Temperature	40°F – 220°F
	Operating Pressure (psi)	3.11 (Hydrostatic)
	Specific Gravity of Fluid - Design	.95 – 1.4

See Reference 3

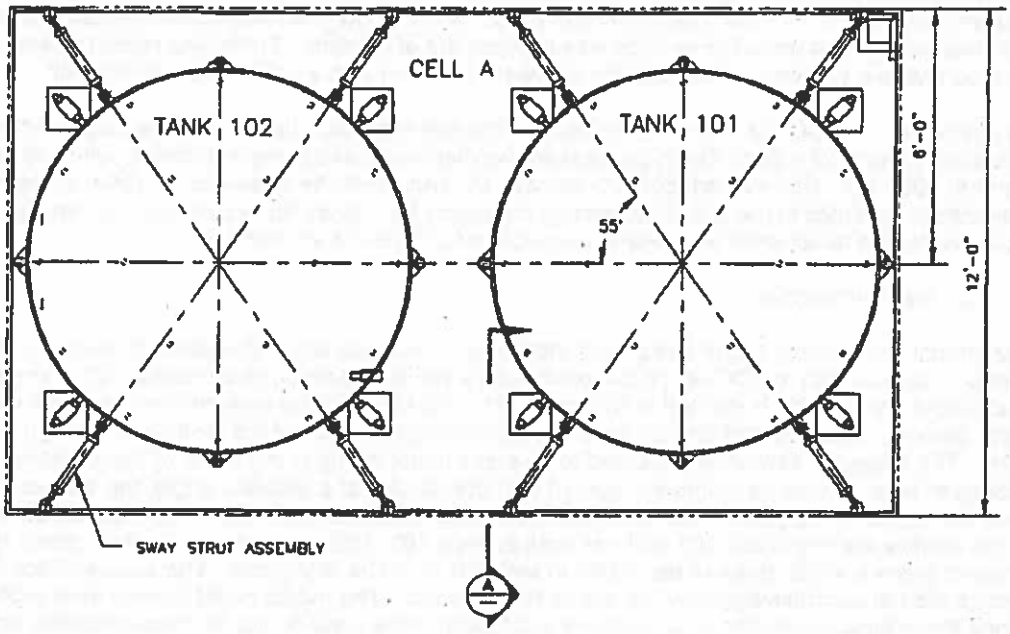
2.1.1 Tank Condition

The tank shell stresses analysis performed in 1990 shows that the tanks are over designed for the applied loads. Specifically, the analysis shows that the required thickness of the tank shell at the top of the tank should be 0.188 inches and at the bottom of the tank 0.062 inches. The thickness of the tanks when fabricated was 0.5 inches. To continue the use of the tanks, the tank shell condition must be evaluated. This was accomplished through two nondestructive inspection methods, a visual inspection and an ultrasonic test.

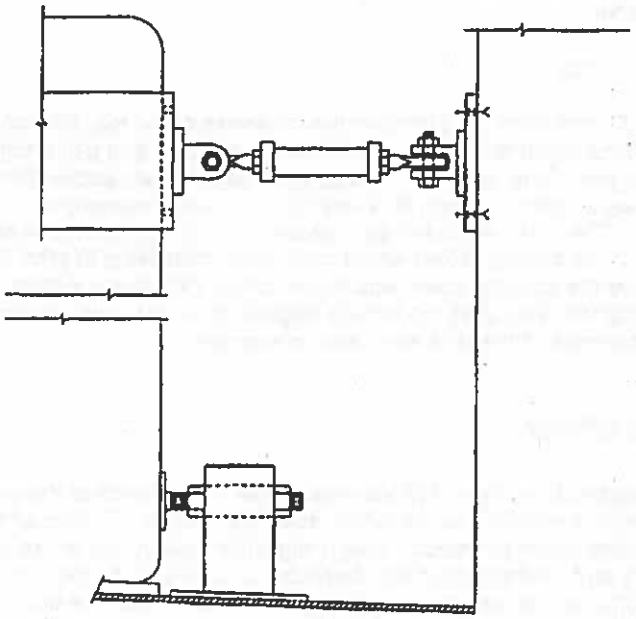
The tanks have been in service since 1951 and required cleaning prior to the inspection. Due to the lack of an agitator in Tank 101, solids accumulated in the tank both on the bottom and sides. The solids in the bottom of the tank were 4 to 6 inches deep and appeared to be fine sand or silt consistency mixed with laboratory debris (i.e. rubber stoppers, broken pipettes, etc). The solids on the bottom were loose and easily removed using a sluicing method with low-pressure water. The solids on the sides appeared to be a crust that adhered to the tank shell.

Tank 102 was equipped with an agitator to mix the waste after chemical addition. This agitation limited the accumulation of solids in the bottom of the tank. There was a build up of some substance, which had a strong bond on the sidewalls of the tank, probably due to years of pH and nitrite adjustments.

Figure 3,
Seismic Restraints for Tanks 101 and 102



PLAN



SECTION

2.1.1.1 Tank Cleaning

Three methods were used to remove the accumulated solids from the tanks. First, a high-pressure washer was used to remove solids from the sides. Second, low-pressure water was used to suspend the solids in solution while the solution was pumped out of the tank. Third, any solids remaining from method one and two were allowed to dry and were removed with a HEPA vacuum cleaner.

The approach to clean the tanks was to use the first two methods alternately to remove solids with a minimal amount of water. The high-pressure washer was a self-propelled device, which sprayed the water at 8000 psi. This was adequate to remove the crust from the sidewalls. A video of the inside of the tanks is available in the 222-S Laboratory regulatory file. Since the water used for cleaning created more waste, the tanks were only cleaned enough to facilitate the inspections.

2.1.1.2 Visual Inspection

The interior and exterior of the tanks were inspected, looking for areas that were discolored, cracked, or pitted. A Quality Control (QC) inspector performed a visual inspection of the tanks. QC inspector qualification information is located in Reference 11. Inspection of the tank interior was done using a video camera, since the radiological dose and contamination levels of the tank were too high for manned entry. The inspector saw what appeared to be some minor pitting in the video of the interior of the tank. However, when the same points are viewed with the camera at a different angle, the area of interest does not appear to be pitted. The inspector also found six areas with marks that are possibly cracks. There are five areas in Tank 101 and one area in Tank 102. When these points were viewed from a different camera angle, three of the marks in tank 101 could be dismissed. The pictures from the camera did not conclusively show the marks to be a crack. The marks might also be from a grinder during the original fabrication or a surface imperfection in the plate during the manufacturing process. Regardless of the origin of the marks they are not deep enough to cause the tank to fail or leak. See Reference 11 for the results of the visual inspection. The exterior of the tank was inspected, except for the area covered by the cooling jacket (see Figure 1). The results of the external examination show no defects on the tank shell.

2.1.1.3 Ultrasonic Testing

Ultrasonic testing (UT) was used to determine the thickness of the top, bottom, and sides of the tank shell. A qualified QC inspector following an approved procedure and using calibrated equipment performed UT testing (see Reference 11). Areas were selected at random for the UT. More than 150 measurements were taken on each tank with the minimum measurement being 0.48 inches (nominal 0.5 inches). The tank wall in the area under the cooling jacket was not measured since destructive removal of the cooling jacket would have been necessary to take the measurements. The decision not to remove the cooling jacket was made for the following reasons: first, the measurements taken demonstrate that the tank shell still has its original thickness; and second, the cooling jacket acts as an additional containment if the tank shell was to ever leak.

2.2 Waste Compatibility

The tanks are constructed from Type 347 stainless steel. The results of the nondestructive testing have shown that this material is resistant to the waste stream and after 47 years of service, there is negligible reduction in the tank shell from corrosion. This is significant given that in the past, there was little control of the quantity and concentration for chemicals poured into the drain system. Today, the 222-S Laboratory has procedures that control the pouring of chemicals into the drain system, which would be detrimental to the stainless steel.

2.3 Ancillary Equipment

Only one section of pipe was reused in the system. This is the penetration between cell A and B, labeled nozzle 81. The spool piece was used in the system that transfers waste from Tank 104 and Tank 102. This nozzle was inspected prior to use and found to be acceptable. All other ancillary equipment is assessed in document HNF-4590 (see Reference 12).

2.4 Concrete Vault and Secondary Containment

Secondary containment is assessed in document HNF-4590 (see Reference 12). The concrete vault was not used as secondary containment due to the unknown information regarding the installation. The vault is in good condition without signs of deterioration due to age (i.e., spalling, cracking etc). The original coating is deteriorating, however the new stainless steel liners protect the concrete. The vault structure was analyzed in 1990 as part of the 219 S Facility assessment and is structurally adequate (see Reference 4).

2.5 Tank System Corrosion Assessment

Not applicable as none of the existing tanks or ancillary equipment comes in contact with the soil.

2.6 Disposition of Unfit-for-Use Tank Systems

Not applicable.

2.7 Extensive Repairs

No extensive repairs were made to either tank. A minor modification to the support posts were required. The original design and fabrication of the tank used nineteen, 2-inch diameter, stainless steel posts for support. These stainless steel posts were 1-4 inches long, with 6-inch diameter carbon steel plates welded to the end. The posts were evenly distributed on the bottom of the tank. The carbon steel plates required removal, due to the corrosion of the carbon steel and the incompatibility of carbon steel with the stainless steel liner installed by project W 178. The tanks were modified by cutting the 2-inch diameter supports off, above the carbon steel plates. This was done while the tanks were removed for installation of the secondary containment liner. The removal work was inspected by QC to ensure that the tank was not damaged. With the supports removed, the tanks are supported around the edge. This method of support was analyzed and found acceptable (see calculation W-178-C07, Reference 13).

3.0 CONCLUSION

3.1 Tank Condition

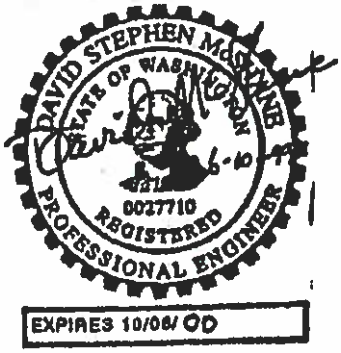
Tanks 101 and 102 are structurally sound with some possible small cracks and minor pitting. The UT correlates with the visual inspection that the tank shell and the welds are still a nominal 0.5 inches thick. The results demonstrate that, after 47 years of service, the waste placed in the tanks has not significantly degraded the tanks. Therefore, as long as the waste criteria or the operational parameters do not significantly change, it can be expected that the tanks will remain functional for the next 30 years without concern of a major structural failure. Any minor leaks that might occur in the next 30 years would be contained and detected in the new secondary containment and repair could be made.

3.2 Future Assessments

This assessment demonstrates that, after 47 years of service, the tanks are in excellent condition. The analysis performed in 1990 shows that a minimum tank shell thickness of 0.188 inches is all that is necessary to contain a full tank of waste. The information from these assessments demonstrates that there is no need for additional assessments of this magnitude for the tanks to operate for the next 30 years. Therefore, the recommendation from this assessment is that no further assessments or testing are required for the tanks to operate safely for the next 30 years.

4.0 STRUCTURAL INTEGRITY ASSESSMENT STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that the qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.



5.0 REFERENCES

1. WAC 173-303, Section 640, "Tank Systems", January 1998
"Dangerous Waste Regulations"

2. Drawing H-2-5233, Sheet 1, Rev 2
"Piping, WT-TK-101 & WT-TK-102 Modifications"

3. HNF-SD-W178-FDC-001, Rev 3, June 19, 1998
"Functional Design Criteria, 219-S Secondary Containment Upgrade"

4. WHC-SD-CP-ER-030, Rev 0, July 6, 1990
"219-S Aqueous Waste Disposal Facility Tank System Integrity Assessment Report"

5. Hanford Plant Standard, SDC 4.1, Rev. 11, 1989
"Architectural-Civil Design Criteria Design Loads for Facilities"

6. UCRL 15910, 1988
"Design and Evaluation Guidelines for Department of Energy (DOE) Facilities Subjected to Natural Phenomena Hazards"

7. UBC 1988, Uniform Building Code
"International Conference of Building Officials," Whittier, CA

8. ANSI/API 650, Rev. 1, 1984 Welded Steel Tanks for Oil Storage
"American Petroleum Institute," Washington, D.C.

9. ASME Section VIII, 1989, ASME Boiler Pressure Vessel Code
"American Society of Mechanical Engineers," New York, NY

10. Calculation W-178-C02, W-178, "219-S Secondary Containment Upgrade
Calculation Item: "Seismic Restraints for Tank 101 and Tank 102 and Cell A Liner"

11. HNF-4621, Rev 0, June 1999
"Data Report for the Integrity Assessment Report HNF-4589"

12. HNF-4590, Rev 0, June 1999
"Integrity Assessment Report for Project W-178"

13. Calculation W-178-C07, W-178, "219-S Secondary Containment Upgrade
Calculation Item: "Analysis of Tank With Curved Bottom"

APPENDIX 4B-2

219-S WASTE HANDLING FACILITY INTEGRITY ASSESSMENT REPORT DESIGN AND CONSTRUCTION NEW TANK SYSTEM AND COMPONENTS, JULY 1999, HNF-4590, REV. 0, WASTE MANAGEMENT FEDERAL SERVICES OF HANFORD, INC., RICHLAND, WASHINGTON

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DOE/RL-91-27, Rev. 2
09/2006

ENGINEERING DATA TRANSMITTAL

JUN 17 1999

Page 1 of 1

1. EDT 620989

2. To: (Receiving Organization) Waste Management	3. From: (Originating Organization) Fluor Daniel Northwest	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: W-178	6. Design Authority/Design Agent/Cog. Engr.: David S. McShane	7. Purchase Order No.: N/A
8. Originator Remarks: FOR RELEASE		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: 219-S
11. Receiver Remarks:	11A. Design Baseline Document? ⊗ Yes ○ No	12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	HNF-4589	ALL	0	INTEGRITY ASSESSMENT REPORT OF TANKS TK-101 AND TK-102	E	2	1	6

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D OR NA (See WHC-CM-3-5, Sec. 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Design Authority L.D. Goodwin		6/9/99	T6-04	1		M.A. Cahill	M A Cahill	6/9/99	T6-03
3	1	Design Agent D.S. McSHANE	David McShane	6/10/99	B4-09	~~3~~	~~—~~	~~D.S. McShane~~			~~B4-09~~
		Cog. Eng.				3		G.S. Chinnery			N1-29
1	1	Cog. Mgr. S.L. BEEY		6/10/99	T6-04						
		QA									
		Safety									
1	1	Env. K.M. LEONARD			T6-12						

18.	19.	20.	21. DOE APPROVAL (if required)
D.S. McShane 6/9/99	M A Cahill 6/9/99	6/9/99	Ctrl No. _____
D.S. McShane / Signature of EDT Originator / Date	M.A. Cahill / Authorized Representative for Receiving Organization / Date	Design Authority/ Cognizant Manager / Date	○ Approved ○ Approved w/comments ○ Disapproved w/comments

BD-7400-172-2 (10/97)

S

219-S Waste Handling Facility Integrity Assessment Report Design & Construction New Tank System and Components

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Fluor Daniel Northwest
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U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 620991 UC:
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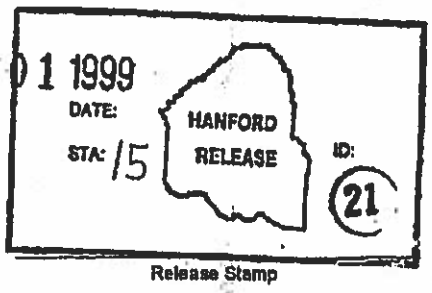
Abstract: Integrity assessment of the new tank system and components.



Karen A. Noland 7/1/99
Release Approval Date

Release Stamp

Approved For Public Release

DOE/RL-91-27, Rev. 2
09/2006
HNF-4590, Rev. 0
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219-S WASTE HANDLING FACILITY

INTEGRITY ASSESSMENT REPORT

DESIGN & CONSTRUCTION

NEW TANK SYSTEM AND COMPONENTS

PROJECT W-178
219-S SECONDARY CONTAINMENT UPGRADE

Prepared for
Waste Management Hanford
Richland, Washington

Prepared by
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Prepared and Certified by
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ChemMet, Ltd., PC
West Richland, Washington 99353

June 23, 1999

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1.0 INTRODUCTION

1.1 General Comments

This assessment report satisfies the "design and installation of new tank systems or components" certification requirements for Washington Administrative Code (WAC) 173-303-640(3) for Project W-178, *"219-S Facility Secondary Containment Upgrade."*

This Integrity Assessment Report was prepared by ChemMet, Ltd., PC, with source material and some text provided by Fluor Daniel Northwest, for Waste Management Federal Services of Hanford, Inc. contractor to the U.S. Department of Energy Richland Operations Office, the 219-S Waste Handling Facility tank system owner.

The purpose of Project W-178 was to update the 219-S Facility tank system to comply with State of Washington and Federal environmental regulatory standards for secondary containment and leak detection for tank systems storing dangerous waste. The upgrades were substantial and the tank system will be evaluated as a new tank system except for components that were existing and reused. An Integrity Assessment Report (Reference 1) prepared by Fluor Daniel Northwest, addresses 219-S existing components (Tanks 101 and 102) that are being used as part of the new upgraded tank system.

The purpose of this report is to document an independent review of the tank system design to meet the requirements of Washington Administrative Code (WAC), Dangerous Waste Chapter 173-303-640(3)(a) (Reference 2). This report is also used to document an independent inspection of the tank system installation to meet the requirements of WAC 173-303-640(3)(c) through (h). Guidelines provided by FDH-1579, Rev. 0 (Reference 3) and Ecology Publication No. 94-114 (Reference 4) are followed in preparation of this report.

1.2 Scope

This report addresses the design and installation of the new tank system provided for during the upgrade of the 219-S Waste Handling Facility. The upgrades bring the 219-S Facility tank system into compliance with dangerous waste secondary containment and leak detection requirements. The major activities in the upgrade were the addition of secondary containment for the vault areas, examination of existing Tanks 101 and 102, installation of a new Tank 104 to replace Tank 103, and modernization of the transfer and instrumentation systems. Tank 103 was replaced only because it was more cost effective and feasible to install a new tank than to remove Tank 103, install a liner, and reinstall Tank 103. This report will be included in the Resource Conservation Recovery Act of 1976 (RCRA) Part B Permit Application for the 222-S Laboratory and is a portion of the integrity assessment of the overall 222-S Laboratory, Radioactive Liquid Waste Disposal System. This report does not address the design assessment of reused components of the 219-S Facility, i.e., Tanks 101 and 102. As mentioned above, a design integrity assessment has already been performed for these tanks.

1.3 System Description and Operation

1.3.1 Original System

The 219-S Facility was originally built in the early 1950's and is part of the 222-S Laboratory Radioactive Liquid Waste Disposal System. A 222-S Laboratory site plan showing the location of the 219-S Facility is included in Figure 1. The 219-S Facility originally consisted of three tanks (Tanks 101, 102, and 103) with interconnecting piping in an underground, epoxy-coated, concrete vault, an operating gallery, and sampling room. This vault was separated into two sections (Cell A and Cell B) with each section sloped to a sump equipped with a steam jet to remove waste and level instrument with an alarm. Tanks 101 and 103 collected waste from the laboratory through underground lines. When enough waste was collected, waste would be transferred to Tank 102 via a steam jet system. In Tank 102, the pH and nitrite levels of the waste would be adjusted prior to transfer to the Tank Farms. Transfer to the Tank Farms was originally made through an underground line routed through the Reduction and Oxidation Facility (REDOX). However, from 1989 to 1998, the waste transfers were made by tanker trailer to Tank Farms.

1.3.2 Current System

Currently, radioactive mixed waste liquids generated in the 222-S Laboratory enter into the collection system in the laboratory (i.e. hot cells, hoods, sumps, etc). The collection system is connected to a transfer system, which moves the waste to the 219-S Facility. There are four main transfer lines connected to the 219-S Facility. Two lines originate in the 11A Hot Cells and were installed by Project W-041H, "*222-S Environmental Hot Cell Expansion.*" The other two lines were installed by Project W-087, "*222-S Radioactive Liquid Waste Line Replacement.*" One of the Project W-087 lines originates in the T8 Tunnel; the other line originates in the T4 Tunnel. The collection and transfer lines are encased (pipe in pipe) piping equipped with leak detection. Waste from the 11A Hot Cells is collected in Tank 101 and waste from T8 and T4 is collected in the newly installed Tank 104. Tank 104 was added by Project W-178. Once enough waste has accumulated in the collection tanks, the waste is transferred to Tank 102 for treatment. In Tank 102, the pH and nitrite levels of the waste are adjusted to meet Tank Farms waste acceptance criteria. The waste is transferred to Tank Farms by an air-operated pump and an underground transfer line (Project W-087). The tanks are operated at a slight negative pressure and only vented through a HEPA filter system. A sketch of the general arrangement of the 219-S Facility is shown in Figure 2. Figure 3 shows the flow diagram of the upgraded system.

The 219-S Facility tank system and components added or modified by Project W-178 are as follows:

Stainless Steel Liners (Secondary Containment):

Two 304L stainless liners were installed. A small liner (7' X 7') for half of Cell B will supply secondary containment for Tank 104. A larger liner (12' X 21') for Cell A will supply secondary containment for Tanks 101 and 102. The liners are designed to contain 100% of the volume of the largest tank within each liner. Each liner has a sloped bottom with sump in the low corner to aid in the removal of liquids resulting from leaks, spills, or precipitation. Each liner sump is provided with a leak-detection system that is designed and operated so that it will alarm should the presence of liquids be detected. Each liner was fabricated into a single unit from 304L stainless steel and tested for leaks prior to being lowered by crane into the cell area. The space between the liners and the concrete walls was grouted.

Figure 1
222-S Laboratory Site Plan

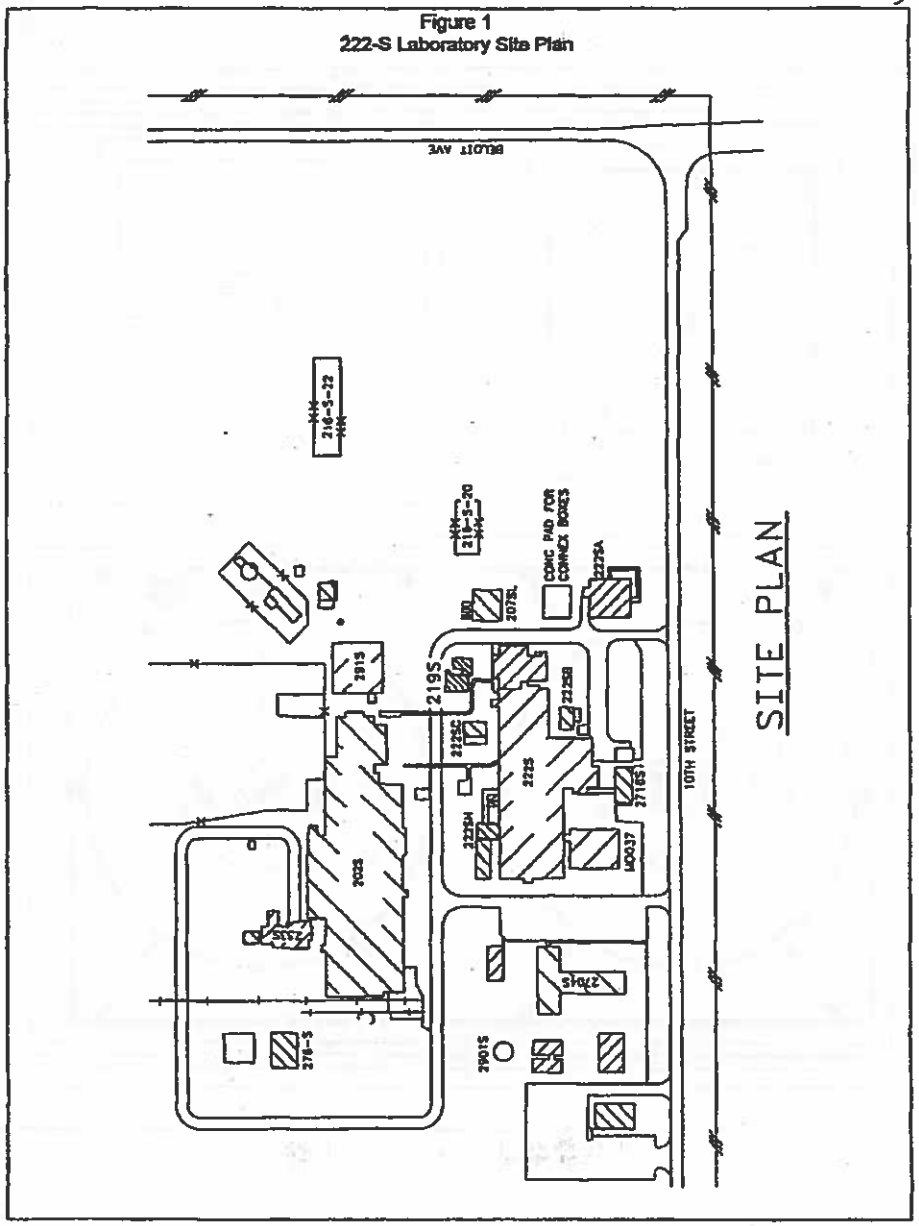
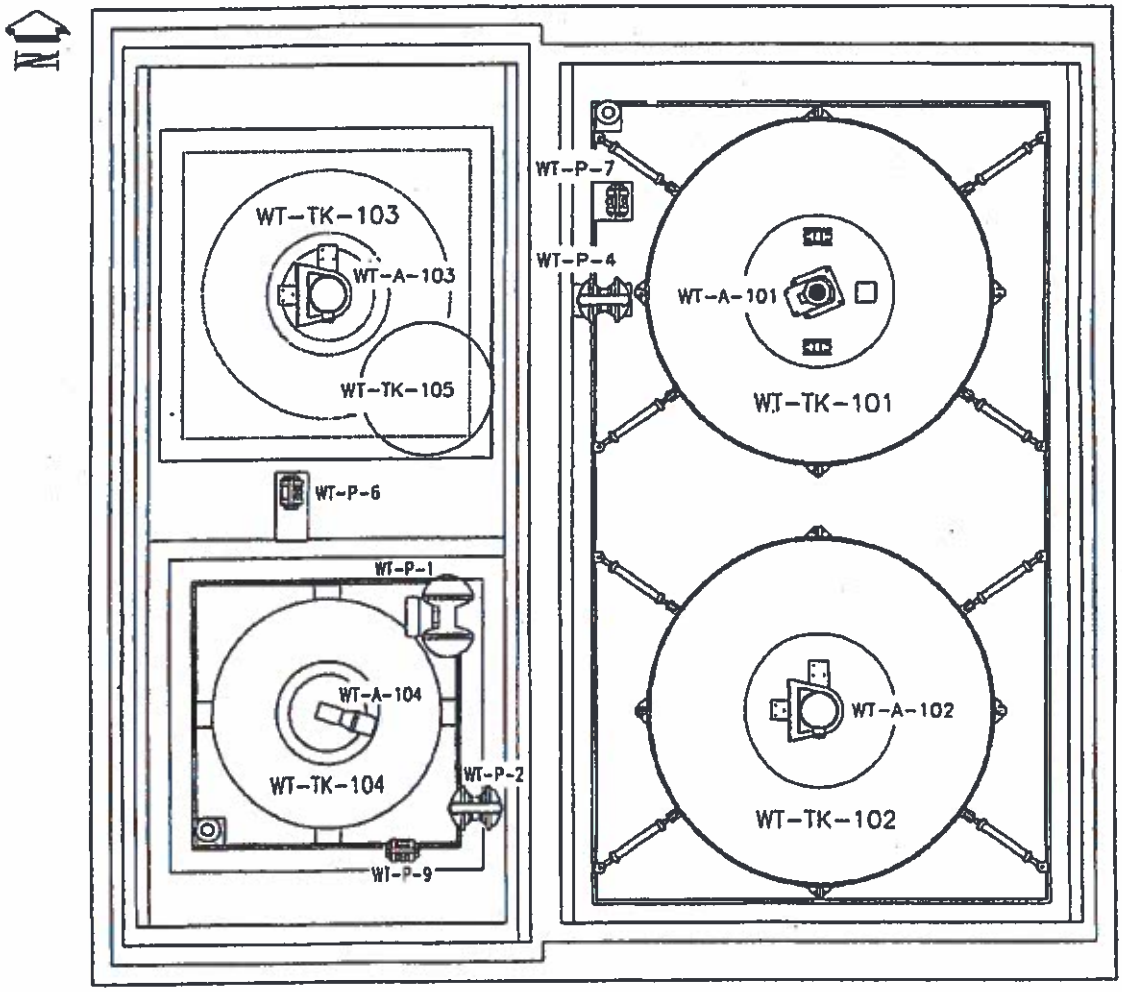
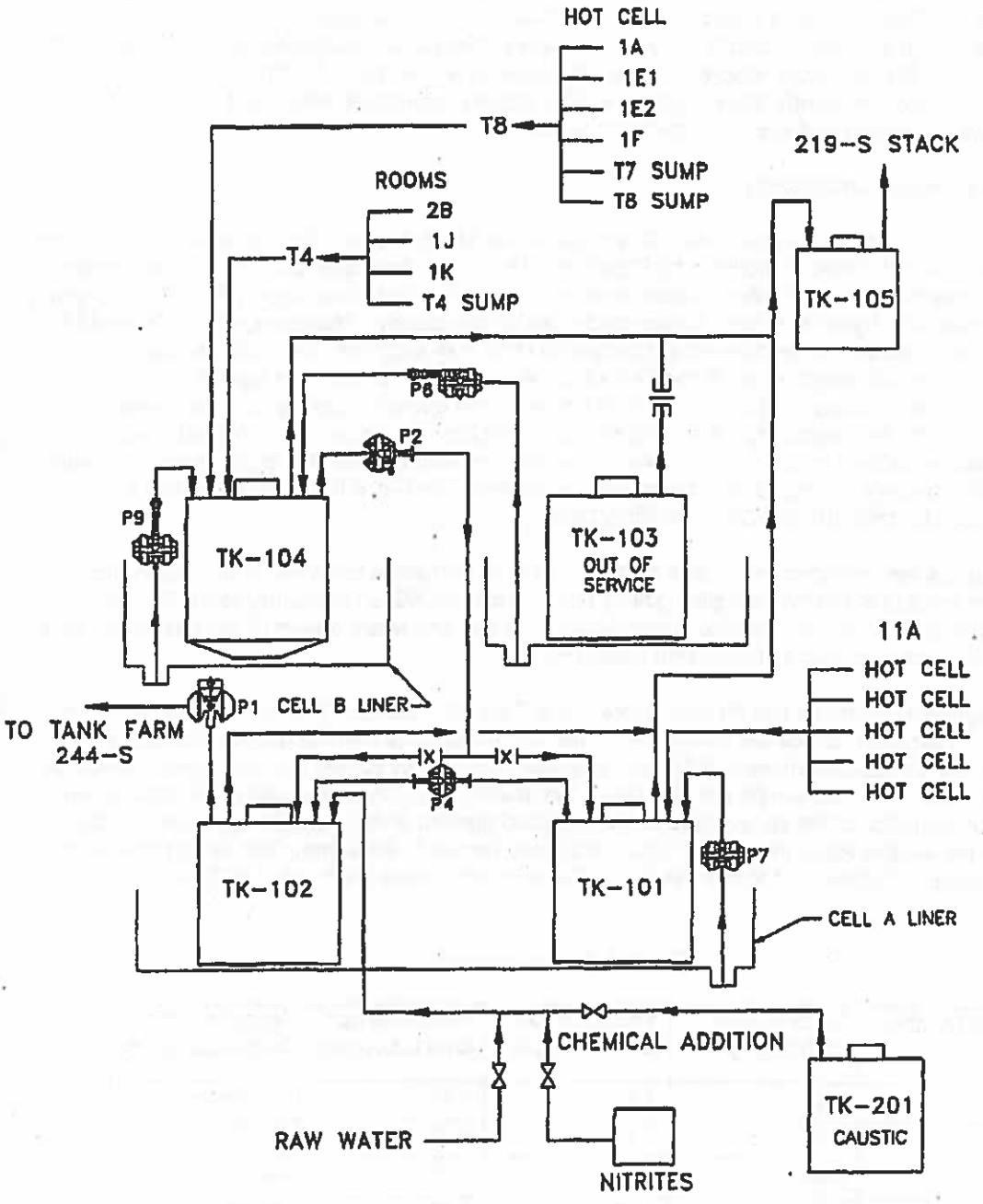


Figure 2
219-S Facility
General Arrangement



219-S CELL A & B PLAN

Figure 3
Waste Transfer System



Tanks (Primary Containment):

Tanks 101 and 102 are existing tanks, which were reused. These tanks were removed, inspected, and replaced in Cell A after the stainless steel liner was installed. The integrity assessment for Tanks 101 and 102 is contained in Reference 1. Tank 104 is a new tank, procured from an off site vendor (Reference 5). This tank has a capacity of 1900 gallons (6 ft.-0 in. diameter by 10 ft.-0 in. tall). Tank 104 was designed and constructed to American Society of Mechanical Engineers (ASME) Section VIII Standards from 304L stainless steel with a shell thickness of 5/16 inches. All three tanks are equipped with agitators, level and temperature instrumentation, and are seismically restrained. Tank 102 is also equipped with sampling and chemical treatment systems.

Sumps (Secondary Containment):

There are four sumps (i.e., sump #6, #7, #8, and #9) in the 219-S Facility. Two of these sumps (Sump #6 and #8) were not added or modified by Project W-178 but are discussed here for completeness of sump descriptions. Sump #6 collects liquids in the area under the out-of-service Tank 103. This tank's remaining heel, of 15 gallons or less, is expected to evaporate quickly. Therefore, use of Sump #6 is anticipated to be strictly for the removal of precipitation that may enter the Tank 103 concrete pit. Sump #7 is in the northwest corner of the Cell A liner and serves as a collection point for Tanks 101 and 102 and Cell A ancillary piping. Sump #8 is located in the operating gallery and serves as a collection point for the caustic and nitrite makeup tanks. Neither the caustic tank, nitrite makeup tank, nor Sump #8 are subject to dangerous waste tank system regulations and are, again, mentioned here for completeness only. Sump #9 is in the southwest corner of the Cell B liner and serves as a collection point for tank 104 and Cell B ancillary piping.

All of the sumps are equipped with a leak detector, which is connected to an alarm on Instrument Panel IP3 in the 219-S Facility operating gallery and an alarm in 222-S Laboratory room 3B. Each sump is equipped with an air-operated sump pump to transfer any waste collect to an appropriate tank. Control of the pumps is also on Instrument Panel IP3.

Liquids collected in Sump #6 and #9 are transferred to Tank 104. Sump #7 liquids are transferred to Tank 101 and Sump #8 liquids are transferred to the 207-SL basin (a non-dangerous waste basin). The pumps are operated from the 219-S Facility operating gallery by turning the appropriate switch on Instrument Panel IP3. The sumps are sized such that a leak of less than one gallon will activate the alarm. After operation of the sump pump a small residual amount of liquid would flow back into the sump from the suction leg of the pump. This liquid would remain in the sump. The lowest level leak detection sensor is located just above this level. Sump volume levels are located in Table 1.

Table 1, Sump Volumes

Sump Number	Volume after pumping (gals)	Volume at low level leak (gals)	Volume at mid level leak (gals)	Volume at high level leak (gals)
P6	0.83	1.40	6.67	No Detector
P7	0.34	1.11	2.22	41.92
P8	0.20	0.78	3.75	4.37
P9	0.61	1.11	2.22	35.64

Interconnecting Piping (Ancillary Piping):

New piping systems were installed to allow waste transfers from Tank 104 to Tanks 101 or 102, from Tank 101 to Tank 102, and from each sump. Additional piping was installed to connect 219-S Facility tanks to underground transfer lines (installed by Project W-087) from the 222-S Laboratory and to Tank Farms. All piping is of seamless construction and is made from Type 304L stainless steel.

The majority of the 219-S Facility piping is provided secondary containment by the tank cell liners. However, a section of piping, between Tunnel T4 and Cell B, is not entirely routed in such a way as to make use of the Cell B liner. In this area, the piping is provided with a secondary containment jacket that drains to the Tank 104 secondary containment. The tank leak detection system also provides leak detection capability for the ancillary piping. Flanged connections on all waste transfer pipe lines are required to have Teflon gaskets.

Level Instrumentation:

Tank 104 is equipped with level instrumentation. The level instrument is a bubbler type, which automatically compensates for specific gravity. The instrument is connected to a recorder which tracks tank volume and has a high level alarm to prevent overfilling of the tank.

Other Systems affected by Project W-178:

Two systems were disconnected to facilitate the removal of the Tanks 101 and 102, and were reinstalled after the tanks were in place. These systems were the chemical addition and sampling systems connected to Tank 102.

Isolation of Tank 103:

Tank 103 was isolated and taken out of service at the end of the project. Prior to emptying the tank, a RCRA protocol sample was obtained with the results placed in the facility operating record. The inventory of the tank was transferred to Tank Farms and a 500 gallon flush of water was used to reduce radiation exposure to personnel performing isolation activities. All piping was disconnected and a pressure relief valve installed on one of the tank nozzles.

1.4 Comments on Certification

Paragraph 3.0 contains the certification statement attesting to the accuracy of the information presented in this report. The certification statement is signed and sealed by an Independent Qualified Registered Professional Engineer (IQRPE) in accordance with WAC-173-303-810(13)(a).

2.0 ASSESSMENTS

Section 2.1 discusses specific considerations for the design assessment. Section 2.2 discusses additional material associated with the construction assessment.

2.1 Design Assessment

The design assessment is based on the applicable codes, standards, design, and construction documents. Design documents include the Functional Design Criteria (Reference 6), the initial *219-S Aqueous Waste Disposal Facility Tank System Integrity Assessment Report* (Reference 7), calculations (Reference 8), and the project drawings (Reference 9).

The tank system described in section 1.3 of this report is adequately designed to prevent failure caused:

- by corrosion, provided proper operational and maintenance controls are placed into effect, or
- by structural loads imposed by the system's intended service.

Selected design calculations were examined and found satisfactory. All calculations were observed to have been prepared, reviewed, and approved by licensed professional engineers.

2.1.1 Design Codes and Standards

Hanford Plant Standard, SDC 4.1
"Architectural-Civil Design Criteria Design Loads for Facilities," Rev. 11, 1989

UCRL 15910 *Design and Evaluation Guidelines for Department of Energy (DOE) Facilities Subjected to Natural Phenomena Hazards*

UBC 1994, *"Uniform Building Code"*, International Conference of Building Officials, Whittier, CA

ASME Section VIII, 1989, *ASME Boiler Pressure Vessel Code*,
American Society of Mechanical Engineers, New York, NY

ASME/ANSI B31.3-96, American National Standards Institute, 1996
"Chemical Plant and Petroleum Refinery Piping"

AWS D1.1, 1994, American Welding Society
"Structural Welding Code – Steel"

2.1.2 Waste Characteristics

Over the effective life of this integrity assessment, it is not possible to predict the complete makeup of the waste streams that will be placed into the 219-S Facility tank system. The waste streams generated in the performance of the 222-S Laboratory are very complex and variable. In the absence of a fully characterized waste stream, this integrity assessment focused on ensuring that the 222-S Laboratory has administrative controls in place to ensure that incompatible wastes are not placed in the 219-S Facility tank system.

This integrity assessment examined two aspects of compatibility control; chemical compatibility and system compatibility. Chemical compatibility addresses the potential for chemicals from different waste streams to react within the system and cause an explosion, a release of toxic fumes, etc. System compatibility addresses the potential for a waste stream to corrode or degrade a 219-S Facility tank system component.

Several procedures are integral to the control of both chemical and system compatibility. In summary, many 222-S Laboratory procedures allow laboratory personnel to place liquids into the 219-S Facility tank system. However, each of those procedures requires the Shift Operations Manager's (SOM) approval before any liquids are placed into the 219-S Facility tank system. Before the approval is given to add liquids to the tank system, a procedure requires the SOM to verify that there is space in the tank system, and that the liquid is compatible with the tank system (Reference 10). A compatibility assessment was developed as the technical basis for determining if a waste is prohibited, i.e. if a waste might corrode or degrade an exposed tank system component. The assessment contains a table that

lists each of the tank system components, and the chemicals/concentrations/conditions that harm those components. If the SOM determines that the waste/chemicals/concentrations/conditions are incompatible with a component of the tank system, the SOM will not grant approval for disposal to the 219-S Facility tank system.

All tanks, liners, piping and gasket materials are constructed of materials that are compatible with the waste given the procedural controls described above.

2.1.3 Corrosion Protection Determination

There are no external metal tank system components in contact with the soil or water.

2.1.4 Vehicular Traffic

There is no impact to the tank system due to vehicular traffic.

2.1.5 Tank Foundation

The liners were placed on the existing concrete floors of the vault. Prior to installation the areas were cleaned and inspected for structural damage.

2.1.6 Tank System Flotation or Dislodgment

The liners have sufficient structural strength and thickness to prevent failure. The design of the liners is supported by calculations (References 11 and 12). The piping stress calculations included an evaluation of the effects of seismic events according to the codes shown in Section 2.1.1 above. The calculations listed in Reference 8 qualify the tanks, liners, and ancillary equipment for any applicable loading including seismic. Seismic restraints and the secondary containment leak detection system provide tank flotation safeguards.

2.1.7 Effects of Frost Heave

There are no new external systems. The existing facility has operated for 47 years with no problems caused by frost heave. No change in performance is expected.

2.2 Construction Assessment

The construction assessment is based upon inspections performed by qualified Fluor Daniel Northwest (FDNW) Quality Control (QC) inspectors. The FDNW QC inspectors functioned as the IQRPE's representative at the construction site. In addition, Fluor Daniel Hanford Quality Assurance Acceptance Inspection (AI) provides acceptance inspection for the government. The IQRPE performed walk-throughs and discussed the construction with the inspection staff. Documentation of the inspections performed are compiled in the Process Control Packages (PCP) (References 13, 14, and 15); Construction Work Package (CWP) W-178-04 (Reference 16); and Acceptance Inspection (AI) Plans (References 17 through 21). The PCP, CWP, and AI plans exceed the requirements of WAC 173-303-640(3)(c) through (g). A discussion of the installation inspections specifically required by the referenced WAC tank system regulations follows.

2.2.1 General Inspections

Inspections were performed to determine if any structural damage occurred during the installation phase and to assess the quality of workmanship. Inspection personnel were present on site to verify that correct materials and procedures were used for the following activities:

- Visual inspection and pressure testing;
- Vault structural inspection prior to liner placement;
- Placement of anchor bolts for seismic supports, liner restraints and pipe supports;
- Grout placement behind liner;
- Placement of shop-fabricated and existing tanks;
- Installation of secondary containment liners;
- Installation of piping, pumps, and other ancillary equipment;
- Tightness testing prior to placing the tank system in service.

2.2.1.1 Weld Breaks

Welders qualified to the requirements of ASME/ANSI B31.3 using qualified weld procedures performed all welding. Inspection of the welds was to the ASME/ANSI B31.3 standards and included a final visual inspection of all welds and an in-process inspection of a representative number of welds. The inspection process was supervised by an American Welding Society (AWS) QC1 certified Weld Inspector, supplied by FDNW QC. All welds passed the inspection process with no weld breaks detected.

2.2.1.2 Punctures

The piping pneumatic pressure tests indicate that none exist.

2.2.1.3 Damage to Protective Coatings

Not Applicable. No protective coatings were required.

2.2.1.4 Cracks

Based on the inspections performed, cracks were not apparent in the concrete structure, liners, tanks, or ancillary equipment.

2.2.1.5 Corrosion

The systems described in Section 1.3 of this report are adequately designed to prevent failure caused by corrosion, provided proper operational and maintenance controls are placed into effect. The system is well designed to minimize external corrosion. Because of the presence of galvanized supports above the stainless steel components, precautions are required to ensure no fires can occur that will melt the zinc galvanizing and cause liquid metal embrittlement of the stainless steel.

2.2.1.6 Other Installation Information

Tank 104 was fabricated to ASME Section VIII Standards. Section 5.0, Reference 6 contains the manufactures data report for the fabrication of the tank. In addition a Kaiser Engineer's Hanford Acceptance Inspection inspector performed an overview of the fabricators QA plan to assure that the tank would be built to the proper requirements. Section 5.0, Reference 1 contains the inspection

assessment for Tanks 101 and 102.

Based on this inspection, performed during construction, no structural damage is evident.

The secondary containment liners were made from Type 304L stainless steel. Welders and the weld procedures used in liner fabrication were both qualified to AWS D 1.1 (Reference 22). A final visual inspection was made on the welds prior to leak testing the liners. FDNW QC and AI witnessed the leak testing. Documentation is found in CWP W-178-04 (Reference 16) and in the AI plans IP-W-178-C2-1 and IP-W-178-2 (References 19 and 21).

2.2.2 Backfill Material

Not Applicable as the tank system is housed within the 219-S Facility vault.

2.2.3 Tightness Testing

A hydrostatic test of Tank 104 was conducted to demonstrate tank tightness. There were no water leaks observed during the test. Piping between cell wall penetrations and tank nozzles had to be installed in sections. These sections are commonly referred to as "spool pieces" and were fabricated by Hanford workers at a shop in the 200W area. The spool pieces were inspected and tested in the fabrication shop prior to installation at the 219-S Facility. The piping was installed in accordance with FDNW procedures and the installation inspected. Because of the operating configuration of the system, it was not possible to perform a standard pressure test after the spool pieces were installed at the tie-in points (e.g. where a spool piece ties into a nozzle). The tie-in points are flanged connections that were gasketed with bolts torqued to manufacturer's recommendations. As an added precaution, each of these tie-in points was sleeved in plastic to contain any possible leaks during initial startup of the system. This was done to minimize the potential of radiation contamination of the cell liner should a leak occur and not for secondary containment as secondary containment already exists. The tightness will be verified via in-service testing of the piping with process liquids.

2.2.4 Ancillary Equipment Support

All ancillary equipment has been adequately supported and protected to prevent physical damage and excessive stresses due to settlement, vibration, expansion and contraction.

2.2.5 Corrosion Protection Systems

Not applicable as none of the external metal tanks or ancillary piping comes in contact with the soil, or water.

2.2.6 Documentation of Inspection Results

Documentation of the inspections performed are compiled in the Process Control Packages (PCP) (References 13, 14, and 15); Construction Work Package (CWP) W-178-04 (Reference 16); and Acceptance Inspection (AI) Plans (References 17 through 21).

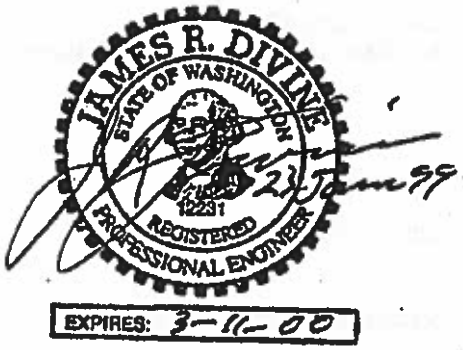
3.0 CONCLUSION

The 219-S Facility tank system has been adequately designed, has sufficient structural strength, is compatibility with the waste to be handled, and has corrosion protection, to ensure that it will not collapse, rupture, or fail, given that the waste control procedures are maintained and the tank system is not exposed to unacceptable conditions. Furthermore, proper installation procedures were followed to prevent damage to this tank system during installation.

Future detailed assessments of the tank system as performed in 1990 and 1999 need not be as frequent. Indeed, is it very probable that the tank system can be safely operated for the next 30 years. Nevertheless, periodic visual inspections, as allowed by principles to minimize radiation exposure to workers, should be performed whenever possible to ensure continued integrity.

4.0 STRUCTURAL INTEGRITY ASSESSMENT CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared or collected under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



5.0 REFERENCES

1. HNF-4589, Rev. 0, June 1999, David S McShane, Fluor Daniel Northwest
"Integrity Assessment Report of Tanks TK-101 and TK-102"

2. WAC 173-303- 640, *"Tank Systems"*, January 1998
"Dangerous Waste Regulations"

3. FDH-1579, Rev 0, Fluor Daniel Hanford
"Integrity Assessment Plans"

4. Publication No. 94-114, Washington State Department of Ecology, June 1994
"Guidance for Assessing and Certifying Tank Systems that Store and Treat Dangerous Waste"

5. Certified Vendor Information Number 22711 Supplement 2,
Flohr Metal Fabricators, Inc., Seattle WA, 1/18/96

6. HNF-SD-W178-FDC-001, Rev 3, June 19, 1998
"Functional Design Criteria, 219-S Secondary Containment Upgrade"

7. WHC-SD-CP-ER-030, Rev 0, July 6, 1990
"219-S Aqueous Waste Disposal Facility Tank System Integrity Assessment Report"

8. Calculation Log, W-178, "219-S Secondary Containment Upgrade," D. S. McShane

9. Hanford Drawing H-2-829169, Project W-178, "219-S Secondary Containment Upgrade"
"Drawing List/Area Map"

10. HNF-4704, Rev 0, June 1999, Larry D. Goodwin, Waste Management Hanford
"219-S Chemical Compatibility"

11. Calculation W-178-C01, W-178, "219-S Secondary Containment Upgrade"
Calculation Item: *"Seismic restraints for Tank 104 and Cell B liner"*

12. Calculation W-178-C02, W-178, "219-S Secondary Containment Upgrade"
Calculation Item: *"Seismic restraints for Tanks 101 & 102 and Cell A & B liner"*

13. PCP W-178-01, Rev 0, *"Process Control Package"*
"Installation of Liner and Tank 104 into Cell B in support of Project W-178 Secondary Containment Upgrade 219-S Facility"

14. PCP W-178-02, Rev 0, *"Process Control Package"*
"Phase One Piping and Mechanical Fabrication/Installation for Project W-178 Secondary Containment Upgrade Building 219-S"

15. PCP W-178-03, Rev 0, *"Process Control Package"*
"Phase One Electrical Fabrication/Installation for Project W-178 Secondary Containment Upgrade Building 219-S"

16. CWP W-178-04, Rev 0, *"Construction Work Package"*
"Installation of the Secondary Containment Upgrades at 219-S Project W-178"

17. IP-W-178-C1-1, Rev 0, *"Inspection Plan"*
"219-S Secondary Containment Upgrade (Instrumentation-Shop fabrication of panels IP1, IP2, and IP3 Spec. Sec. - 13440)"

18. IP-W-178-C1-2, Rev 0, *"Inspection Plan"*
"219-S Secondary Containment Upgrade"

19. IP-W-178-C2-1, Rev 0, *"Inspection Plan"*
"219-S Secondary Containment Upgrade"

20. IP-W-178-P1-1, Rev 0, *"Inspection Plan"*
"219-S Double Containment Upgrade (Offsite fabrication of a atmospheric tank)"

21. IP-W-178-2, Rev 0, *"Inspection Plan"*
"219-S Secondary Containment Upgrade (Structural, Cell Liner B)"

22. AWS D.1.1, 1994, American Welding Society
"Structural Welding Code – Steel"

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DOE/RL-91-27, Rev. 2
09/2006

JUL 01 1999 (21) ENGINEERING DATA TRANSMITTAL

Station 15

Page 1 of 1

1. EDT 620991

2. To: (Receiving Organization) Waste Management	3. From: (Originating Organization) Fluor Danial Northwest	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: W-178	6. Design Authority/Design Agent/Cog. Engr.: David S. McShane	7. Purchase Order No.: N/A
8. Originator Remarks: For Release		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: 219-S
11. Receiver Remarks: 11A. Design Baseline Document? (X) Yes ( ) No		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	HNF-4590	ALL	0	219-S WASTE HANDLING	E	2	1	6
				FACILITY INTEGRITY				
				ASSESSMENT REPORT				
				DESIGN & CONSTRUCTION				
				NEW TANK SYS. & COMPONENTS				

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Design Authority L.D. Goodwin	L.D. Goodwin	6-23-99	T6-04
3	1	Design Agent D.S. McShane	D.S. McShane	6-23-99	B4-09
		Cog. Eng.			
1	1	Cog. Mgr. S.L. Brey	S.L. Brey		T6-04
		QA			
		Safety			
1	1	Env. K.M. Leonard	K.M. Leonard	6/28/99	T6-12

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	M.A. Cahill	M.A. Cahill	6/28/99	T6-03
3		G.S. Chinnery			N1-29
3		M.S. Collins			A5-18
3		222-S Regulatory File			T6-12
		DOE/RL Reading Room			H2-53
		Central Files			B1-07

18. David McShane — D.S. McShane — Signature of EDT Originator — 6-23-99 Date

19. M.A. Cahill — M.A. Cahill — Authorized Representative for Receiving Organization — 6/28/99 Date

20. S.L. Brey — S.L. Brey — Design Authority/ Cognizant Manager — 6/30/99 Date

21. DOE APPROVAL (if required)
Ctrl No. _____
( ) Approved
( ) Approved w/comments
( ) Disapproved w/comments

BD-7400-172-2 (10/97) BD-7400-172-1

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
A. D. Huckaby, Ecology	T. Teynor, RL	Incoming 9952615

Subject: REGARDING REQUEST FOR APPROVAL TO STAGE OUT OF SERVICE ANCILLARY DRAIN PIPING IN THE 222-S LABORATORY SERVICE TUNNELS

DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		Fluor Daniel Hanford, Inc.		
		W. D. Adair	H6-21	X
		A. G. Miskho	H6-06	X
		S. M. Price	H6-23	X
		Env. Int. File LB	H6-23	X
		Waste Management Federal Services of Hanford, Inc.		
		RCRA Scan (D. Jensen)	H6-26	X

NO ATTACHMENTS RECEIVED

Aw/4-15-99
376-1463

A-6001-538S (02/98)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

October 10, 1997

Mr. Thomas Teynor, Director
Waste Programs Division
P.O. Box 550, MSIN: S7-55
Richland, WA 99352

Dear Mr. Teynor:

Re: Request for Approval to Stage Out of Service Ancillary Drain Piping in the 222-S Laboratory Service Tunnels (WA7890008967) (TSD: TS-2-1)

The Washington State Department of Ecology (Ecology) has received and reviewed the U.S. Department of Energy's (USDOE) above-referenced request dated July 3, 1997. The letter accurately documents the agreements made regarding the staging of high dose drain piping that was removed from service in a shielded staging area within the T8 tunnel. The following items hereby outline the agreements, as well as their status:

1. The Engineering Control Notice (ECN) was issued against the facility drawings. This documents the location and configuration of the staging area.
2. The piping will be included in the 222-S Laboratory Complex closure plan, which will be addressed as part of the revised 222-S Laboratory Complex Part B Permit Application.
3. Prior to project completion, signs will be installed to clearly identify the purpose for which the area is being used. In addition, the postings require the facility manager's approval to add or remove any materials. The requirement to obtain the facility manager's approval is also included on the ECN.
4. An inventory has been developed and will be maintained for aiding in the closure of the facility. A retrieval record of this package will be developed and the location identified on the as-built drawing.
5. A letter dated July 3, 1997, documenting the previously listed agreements was generated.

In addition to the above agreements, Ecology requests the existence of the solid waste management unit (SWMU) be formally tracked by the Waste Information Data System (WIDS) (or any such equivalent system used to track Hanford Site SWMUs).

If you have any questions regarding this letter, please contact me at (509) 736-3034.

Sincerely,

Alisa D. Huckaby, S Plant Project Manager
Nuclear Waste Program

AH:sb

cc: Robert P. (Paul) Carter, USDOE
Cliff Clark, USDOE
Roger Gordon, USDOE
Russ Bisping, FDH
Sue Price, FDH
J.J. Beyer, FDNW
Mike Cahill, WMFSH
R.H. Engelman, WMFSH
Mary Lou Blazek, ODOE
Administrative Record: 222-S Laboratory Complex

NO ATTACHMENTS RECEIVED

0048599 9850850

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JUL 23 1997

97-ASP-014

RECEIVED

JUL 23 1997

J.A. WINTERHALDER

Mr. Ron E. Skinnarland
State of Washington
Department of Ecology
200 Area Section
1315 West Fourth Avenue
Kennewick, Washington 99336

Dear Mr. Skinnarland:

REQUEST FOR APPROVAL TO STAGE OUT OF SERVICE ANCILLARY DRAIN PIPING IN THE 222-S LABORATORY SERVICE TUNNELS

The U.S. Department of Energy, Richland Operations Office (RL) is requesting the State of Washington, Department of Ecology (Ecology) formal approval to stage out of service ancillary drain piping in the 222-S Laboratory T8 tunnel.

On April 29, 1997, a meeting was held with representatives of RL, Ecology, Waste Management Federal Services of Hanford Inc., and Fluor Daniel Northwest Inc., to discuss several options for proceeding with Project 93L-EWW-087, "222-S Radioactive Liquid Waste Line Replacement." A proposal was presented to Ecology, which entailed the staging of high dose drain piping that was removed from service in a shielded staging area within the T8 tunnel until facility closure. Ecology (Alisa Huckaby and Fenngang Ma) concurred with the proposal as a means to maximize use of the available funding in obtaining a fully compliant drain system. An Engineering Change Notice (ECN) would be the mechanism used to document and control the configuration of the out-of-service piping. It was agreed that a letter documenting this agreement would be generated.

The following rationale is provided as a basis for this proposal:

- The out-of-service piping is highly radioactive and poses a significant radiological exposure hazard to construction workers.
- It would be more cost effective, ALARA and more efficient to dispose of this pipe during closure of the facility, where economy of scale can be realized and advanced technologies can be utilized.
- The piping can be secured and shielded to limit exposure to workers during construction and operations personnel in the future.
- The savings in schedule, cost and radiation exposure would increase the likelihood of obtaining full compliance with WAC 173-303-640

There was discussion as to where the piping would be staged and how it would be documented and controlled. The following items outline the agreement:

- The draft ECN, which was reviewed at the meeting, would be issued against the facility drawings. This would document the location and configuration of the staging area.
- This piping will be included in the 222-S facility closure plan, which is part of the revised 222-S Part B Permit Application.
- Signs will be installed to clearly identify what this area is being used for and require facility manager approval to add or remove any materials. This requirement is included on the ECN.
- An inventory would be developed and maintained for aiding in the closure of the facility. A retrieval record of this package will be developed and the location identified on the as-built drawing.
- A letter documenting this agreement would be generated.

ECN W-087-76 has been issued and a copy is attached for your information. Please direct any questions you or your staff may have to Roger Gordon, of my staff, on 372-2139.

Sincerely,

for Thomas K. Teynor, Director
Waste Programs Division

Attachment

cc w/att:
A. D. Huckaby, Ecology
F. Ma, Ecology

cc w/o att:
EDMC, H6-08
J. J. Beyer, FDNW
M. A. Cahill, WMFSH
R. H. Engelmann, WMFSH
R. Jim, YIN
D. Powaukee, Nez Perce Tribe
S. M. Price, FDH
K. S. Tollefson, WMFSH
J. Wilkinson, CTUIR
J. F. Williams Jr., WMFSH
J. A. Winterhalder, WMFSH
97-ASP-014